

# Service Manual

**PIONEER®**  
The Art of Entertainment

• KEH-3400SDK/WG



ORDER NO.  
CRT1427

CASSETTE CAR STEREO WITH FM/MW ELECTRONIC TUNER

**KEH-3400SDK**

WG

**KEH-2400SDK**

WG

**KEH-2400B**

EW

CASSETTE CAR STEREO WITH FM/MW/LW ELECTRONIC TUNER

**KEH-3430B**

EW

**KEH-2430B**

EW

## Note:

- See the separate manual CX-197 (CRT1328) for the cassette mechanism description.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double -D symbol are trademarks of Dolby Laboratories Licensing Corporation.
- Whenever a cord assembly may be used for repairing, do not fail to employ the cord assembly designed for the related part.  
Do not apply any cord assembly designed for a different part.

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## SAFETY INFORMATION

**WARNING!**

Lithium batteries. Danger of explosion. Replacement must be done by qualified personnel and only by following the instructions given in the service manual.

This warning is stated on the product or in the operating instructions. When replacing the lithium batteries, follow the note below.

Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

Note: The lithium battery installation position is shown in the exploded view and the P.C. board pattern.

**ADVARSEL!**

Lithumbatteri — Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

Denne advarsel er angivet på produktet eller i brugsvejledningen. Ved udskiftning af lithium batterierne følges nedenstående anvisning. Batterierne må kun udskiftes med batterier af samme type og mærke.

**VARNING**

Explosionsfara vid felaktigt batteri-byte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Denna varning finns på apparaten eller i bruksanvisningen. Följ nedanstående anvisningar vid byte av litiumbatterier. Batterierna får endast bytas ut mot litiumbatterier av samma typ och fabrikat.

## 1. SPECIFICATIONS

**General**

Power source	14.4 V DC (10.8 – 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	7.0 A
Dimensions (chassis)	180(W) × 50(H) × 141(D) mm
(front face)	188(W) × 58(H) × 16(D) mm
Weight	1.4 kg

**Amplifier**

Maximum power output	25 W × 2/15 W × 4 (EIAJ)
Continuous power output	11 W × 2 (1% dist. at 1 kHz)
Load impedance	4 Ω (4 – 8 Ω allowable)
Tone controls (bass)	±10 dB (100 Hz)
(treble)	±10 dB (10 kHz)
Loudness contour	+8 dB (100 Hz) (volume: -30 dB)

**Tape player**

Tape	Compact cassette tape (C-30 – C-90)
Tape speed	4.76cm/sec. (+0.14cm/sec., -0.05cm/sec.)
Fast forward/rewind time	Approx. 100 sec. for C-60
Wow & flutter	0.13% (WRMS)
Frequency response (KEH-3430B, KEH-3400SDK) ... Metal:	40 – 17,000 Hz (±3 dB)
(KEH-2430B, KEH-2400SDK, KEH-2400B)	40 – 14,000 Hz (±3 dB)
Stereo separation	45 dB
Signal-to-noise ratio (KEH-3430B, KEH-3400SDK) ... Metal: Dolby B NR IN:	63 dB
(KEH-2430B, KEH-2400SDK, KEH-2400B) ... 52 dB (IEC-A network)	
Dolby NR OUT:	55 dB (IEC-A network)

**FM tuner**

Frequency range	87.5 – 108 MHz
Usable sensitivity	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 – 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

**MW tuner**

Frequency range	531 – 1,602 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (±9 kHz)

**LW tuner (KEH-3430B, KEH-2430B)**

Frequency range	153 – 281 kHz
Usable sensitivity	30 μV (30 dB) (S/N: 20 dB)
Selectivity	50 dB (±9 kHz)

**Note:**

Specifications and the design are subject to possible modification without notice due to improvements.

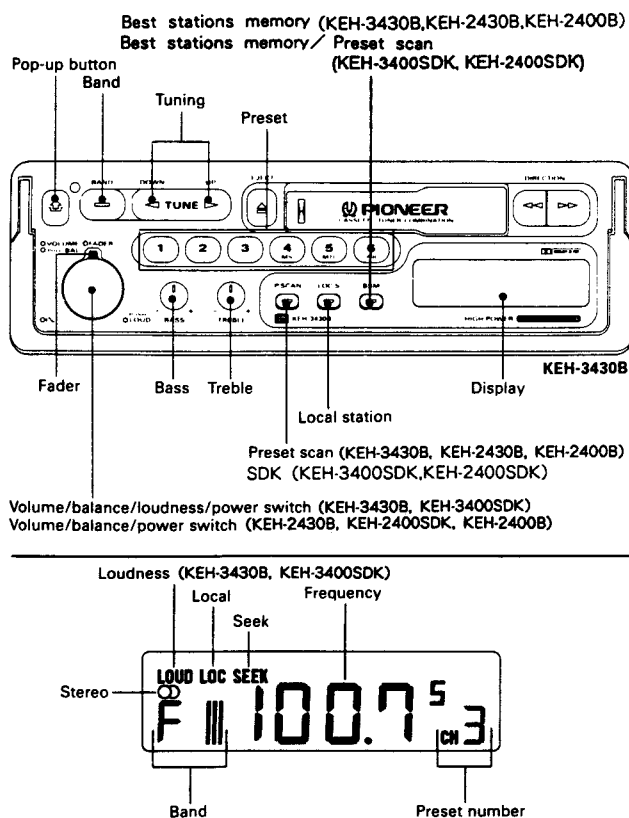
● **Features**

- Built-in highly sensitive "Automatic Reception Control" (ARC) for automatic control of stereo separation, muting and frequency characteristics to match the strength of the FM signal.
- The Best Stations Memory automatically memorizes the six best (strongest) stations in the six preset buttons in the order of their strength.
- Preset scan tuning for sequential recall of preset frequencies.
- Auto reverse function eliminates the need to turn the cassette over and allows uninterrupted playback.
- Built-in Dolby B NR for reduced tape hiss.  
(This feature is provided for the KEH-3430B and KEH-3400SDK.)
- Music search function allows automatic playback from the beginning of the selection being played or the beginning of the next selection.  
(This feature is provided for the KEH-3430B and KEH-3400SDK.)
- Choice of either 4-speaker or 2-speaker system is possible. When the 4-speaker system (15 W × 4) is used, volume of front and rear speakers can be adjusted independently, for optimum sound balance. The 2-speaker system (25 W × 2) provides more than enough power for clear, high-fidelity playback.
- The "Quick Release Mounting Bracket", facilitates mounting and dismounting of the car stereo and serves to protect the unit from theft.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.  
"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

● **Electronic Tuner (KEH-3400SDK, KEH-2400SDK, KEH-2400B)**

Frequency allocation differs depending upon the area. This unit has been designed in accordance with the frequency allocations for Western Europe, Asia, the Middle and Near East, Africa, Australia and Oceania. Use in other areas may result in improper reception of AM.

## 2. USING THE RADIO



### ● Before attempting operation...

- Set the fader control to the upright position.
  - 1. Turning the power switch to the right causes power to switch ON and the current frequency to appear on the display.
  - Since the set is designed preferentially for tape play, eject a cassette tape, if mounted, before operating the radio.
  - 2. Press the band switch to select the band.
  - Switching between FM and MW/LW is controlled by the band switch. Switching between LW and MW is accomplished using the tuning button. The MW band is from 531 kHz to 1,602 kHz, and the LW band is from 153 kHz to 281 kHz.
  - 3. Press both ends of tuning button and the seek tuning indicator will appear on the display.
  - 4. Press either the left or right side of the tuning button to tune in the desired frequency. (Pressing the right side will increase the frequency.)
  - 5. Adjust the volume and balance. To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
  - 6. Adjust the tone.
  - To enter a frequency into the preset memory...
  - 7. Hold down one of the preset buttons (1-6) for approximately two seconds. The frequency is stored in memory (assigned to the preset button pressed) once the preset number stops flashing on the display.
- Six FM1 frequencies, six FM2 frequencies, six FM3 frequencies and six MW and LW frequencies can be entered.

### ● Best Stations Memory Button

Automatically tunes strong frequencies and assigns them to preset buttons 1 through 6 for one-touch automatic tuning. The best stations memory function is activated by pressing this button for approximately 2 seconds. The best stations memory function is indicated by ——— flashing on the display, and this function can be canceled by pressing the band switch. The frequency display returns once the best stations memory function is complete. The frequency displayed at this time is of the strongest station assigned to preset button 1 by the best stations memory function.

- 6 best (strongest) frequencies are memorized in the 6 preset buttons in the order of their strength, the strongest one being assigned to preset button 1.
- The frequencies previously assigned to the preset buttons are retained when 6 frequencies cannot be located.
- The best stations memory is in operation while ——— is flashing on the display.

### ● Local Station Switch

Pressing this switch increases the seek threshold level so that only relatively strong stations can be tuned in (local indicator will illuminate on the display). Local seek threshold level can be selected among four levels for FM and two levels for MW and LW. Holding this switch down for approximately 2 seconds and then pressing the right side of the tuning button changes the display from L-1, L-2, L-3 to L-4. Pressing the left side of the tuning button changes the display from L-4, L-3, L-2 to L-1 (L-1 and L-2 for MW/LW). The bigger the number, the higher the seek threshold becomes and only relatively strong stations can be tuned in.

### ● Fader Control

This control is used to adjust the balance between the front and rear speakers when using a 4-speaker system. Turning the control to the right decreases the volume of the rear speakers, while turning it to the left decreases the volume of the front speakers. With 2-speaker systems, set this control to the upright position.

A considerable amount of sound will continue to be produced from speakers of a 4-speaker system which have been cut by setting the fader control either to the front speakers or rear speakers. This is normal and does not indicate malfunction.

### ● Loudness Switch (KEH-3430B, KEH-3400SDK)

When playing back a tape or listening to the radio at low volume, the low tone is emphasized and more clearly heard by pressing this switch.

### ● Auto-Loudness (KEH-2430B, KEH-2400SDK, KEH-2400B)

When playing back a tape or listening to the radio at low volume, the low tone is automatically emphasized.

### Seek Tuning

Press both ends of tuning button and tuning to the next higher or lower broadcast on the band can be accomplished automatically by simply pressing either the right or left side of the tuning button. FM frequencies change in 50 kHz steps while those in the MW and LW bands change in 9 kHz steps.

### Preset Scan Tuning

Pressing the preset scan button (CH indicator flashes) causes previously stored frequencies to be tuned in sequentially for eight seconds each. Press again when the desired frequency is tuned in to cancel preset scan tuning.

### Preset Tuning

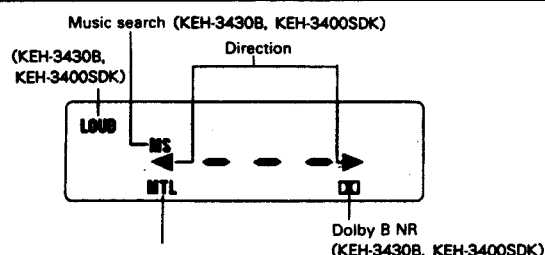
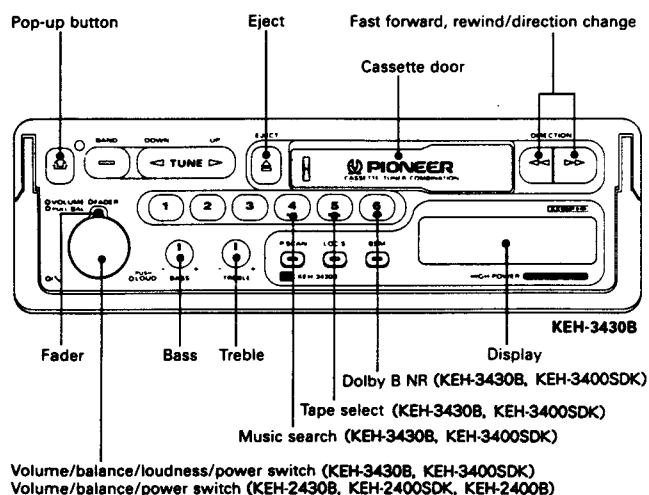
Pressing the preset button instantly tunes in the frequency programmed in the memory for that button.

### Manual Tuning

When manual tuning is employed, FM frequencies change in 50 kHz steps, LW frequencies change in 1 kHz steps, and MW frequencies change in 9 kHz steps.

1. Press both ends of tuning button and the seek tuning indicator will disappear from the display.
2. Change the frequency by pressing either the left or right side of the tuning button. Pressing the button once will change the frequency one step (see above). Continuously depressing either side of the button will successively change the frequency at the prescribed step.

## 3. USING THE TAPE DECK



#### ● Before attempting operation...

- Set the fader control to the upright position.
- 1. Turning the power switch to the right causes power to switch ON.
- 2. Loading a cassette tape into the load slot causes playback to begin automatically.
- 3. Adjust the volume and balance. To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
- 4. Adjust the tone.
- 5. When tape playback reaches the end of the tape, playback will automatically switch from the side being played to the opposite side (ie. Side A to Side B or vice versa) (Auto-reverse). To eject the tape during playback, press the eject button.

#### ● Pop-up button

When the quickrelease handle is on the bottom, push the button to move it up slightly. Push it when you remove the unit from the dashboard.

The button works only when the handle lock is released.

- Before removing this unit from your vehicle, be sure to remove cassette tapes and make sure that radio power is switched OFF.

- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.
- Do not try to eject the cassette immediately after insertion, as it will cause malfunction. Wait a few seconds.
- Loose tapes should be rewound with the aid of a pencil and unevenly wound tapes rewound with the use of the fast forward function.
- Be sure to eject the tape when the vehicle's ignition is turned OFF. Leaving the tape in the unit can deform the pinch roller causing wow and flutter during tape playback.

#### ● Fast Forward/Rewind

Since the transport can be in either direction, both the left and right high-speed tape transport buttons can be regarded as fast forward/rewind buttons.

For fast forward, press the high-speed tape transport button that corresponds to the direction that is shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the opposite side of the tape (Auto-reverse).

For rewind, press the button that is opposite that of the direction shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the beginning of the same side of the tape (Auto-replay).

Fast forward and rewind can be terminated by pressing the respective opposite high-speed tape transport button.

#### ● Direction Change

Push the fast forward and rewind buttons together to switch from one side of the tape to the other (from Side A to Side B or vice versa).

#### ● Dolby B NR Switch (KEH-3430B, KEH-3400SDK)

Press when playing a tape recorded with Dolby NR.

#### ● Tape Select Switch (KEH-3430B, KEH-3400SDK)

This switch is used to switch to the proper mode for the tape being used and should be depressed when using chrome or metal tapes.

### Music Search (KEH-3430B, KEH-3400SDK)

#### ● Returning to the beginning of selection A

Press the music search button and then the high-speed tape transport button for the direction opposite that is shown by the direction indicator. Playback will automatically start from the beginning of selection A.

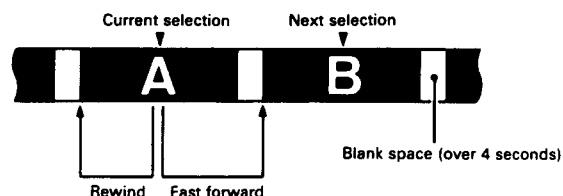
#### ● Moving from selection A to selection B

Press the music search button and then the high-speed tape transport button that corresponds to the direction shown by the direction indicator. Playback will automatically start from the beginning of selection B.



To enable regular fast forward/rewind operations, press the music search button again to turn the function OFF. The following errors will cause the music search function to operate improperly, even though the unit is not malfunctioning.

- Unrecorded "blank" portions between selections less than 4 seconds → the blank portion cannot be detected by the unit.
- Pauses in recorded conversations longer than 4 seconds → the unit reads these as blanks between selections.
- Portions recorded at very low volume for more than 4 seconds → the unit reads these as blanks between selections.



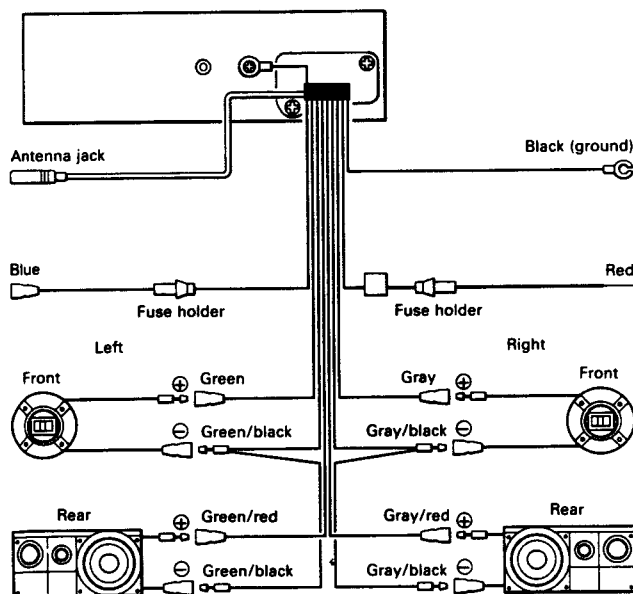
## 4. CONNECTIONS

### Note:

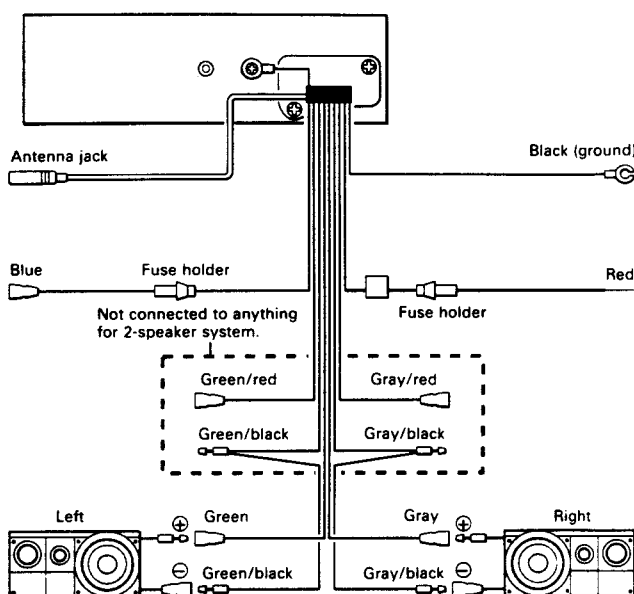
- To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.
- Replace fuses only with the types stipulated on the fuse holder.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.
- Cover unused terminals with tape to prevent electrical shorts.
- Since a unique BPTL circuit is employed, never wire so the speaker leads are directly grounded or the left and right speaker ⊖ leads are common.
- Speakers connected to this unit must be a high-power type possessing maximum input of at least 25 W and impedance of 4 to 8 ohms. Connecting speakers with output and/or impedance values other than those noted here can damage the speakers.

<b>Black (ground)</b>	To vehicle (metal) body.
<b>Blue</b>	To auto-antenna power terminal (Max. 300 mA 12 V DC).
<b>Red</b>	To electric terminal controlled by ignition switch (12 V DC) ON/OFF.

### 4-speaker system



### 2-speaker system



## 5. DISASSEMBLY

### ● Removing the Case

1. Insert and turn a screwdriver to remove the case.
2. Raise the case to remove.

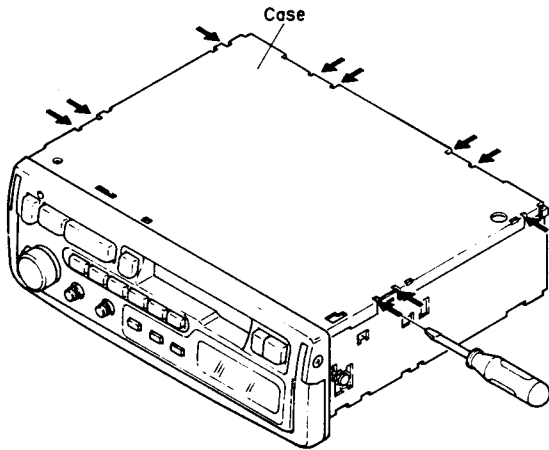


Fig. 1

### ● Removing the Grille Assy

1. Remove the two knobs.
2. Press the tabs at four locations, and then pull out the grille assy.

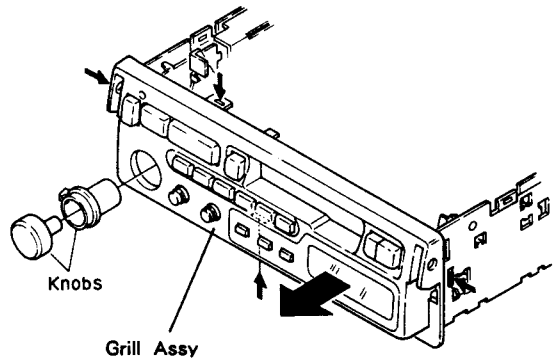


Fig. 3

### ● Removing the Handle

1. Remove the two screws, and then remove the handle.

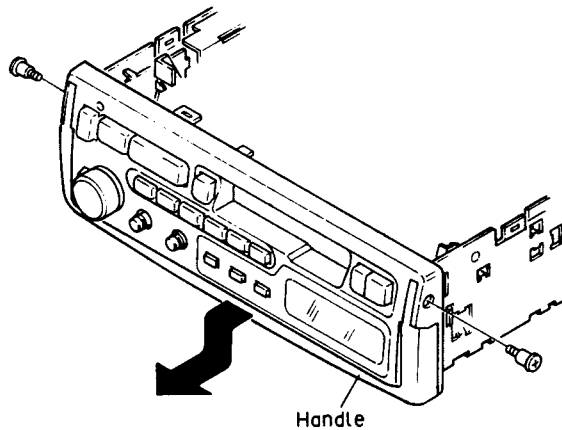


Fig. 2

### ● Removing the Cassette Mechanism Assy

1. Remove the insulator.
2. Disconnect the connector.
3. Remove the six screws A and two screws B.
4. Remove the cassette mechanism assy.

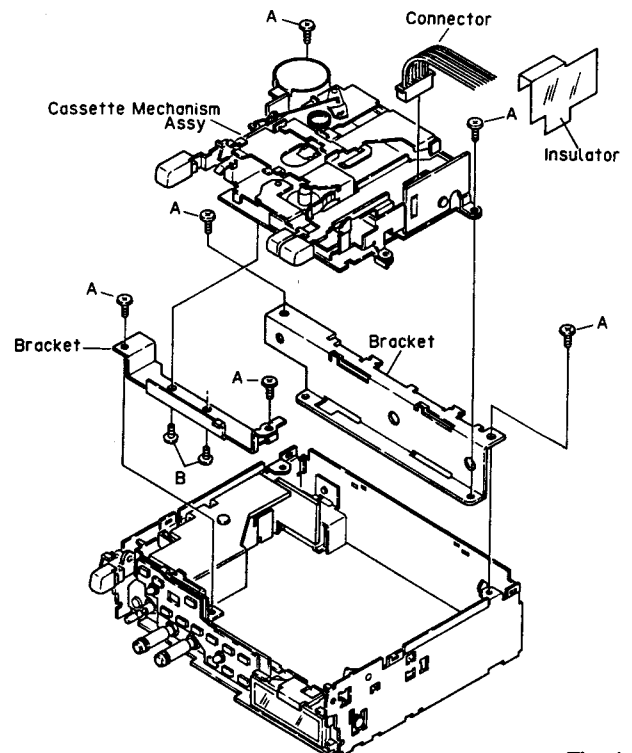


Fig. 4

● **Removing the SDK P.C.Board**  
(KEH-3400SDK, KEH-2400SDK)

1. Pull out the SDK P.C.Board.

● **Removing the Dolby NR P.C.Board**  
(KEH-3400SDK, KEH-3430B)

1. Pull out the Dolby NR P.C. Board.

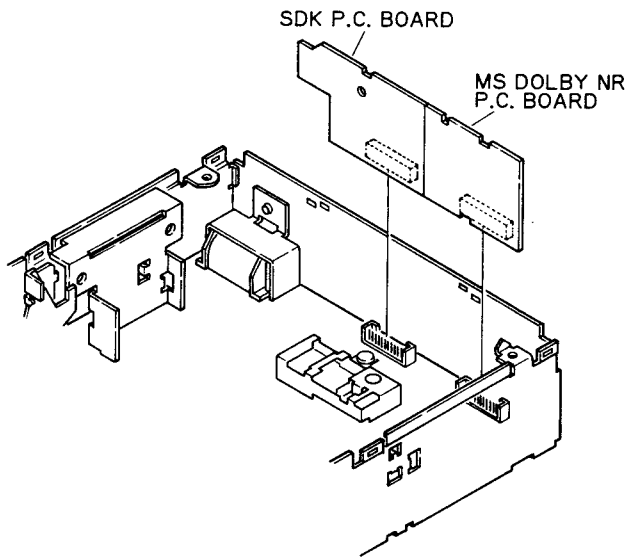


Fig. 5

● **Removing the Tuner Amp Unit**

1. Remove the four screws C.
2. Raise up on tuner amp unit to remove it from the chassis unit.

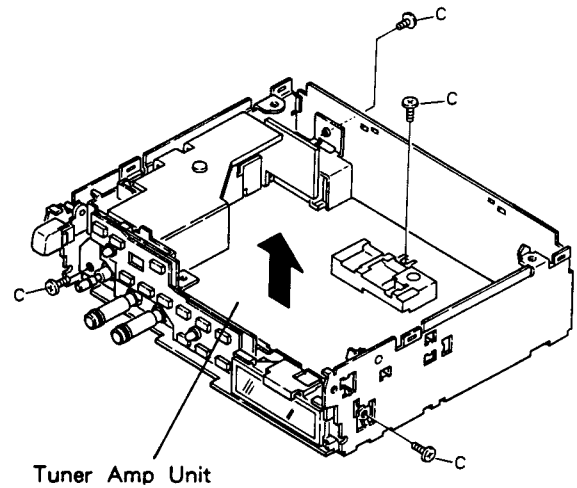


Fig. 6

## 6. ADJUSTMENT

### ● Connection Diagram

#### NOTICE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

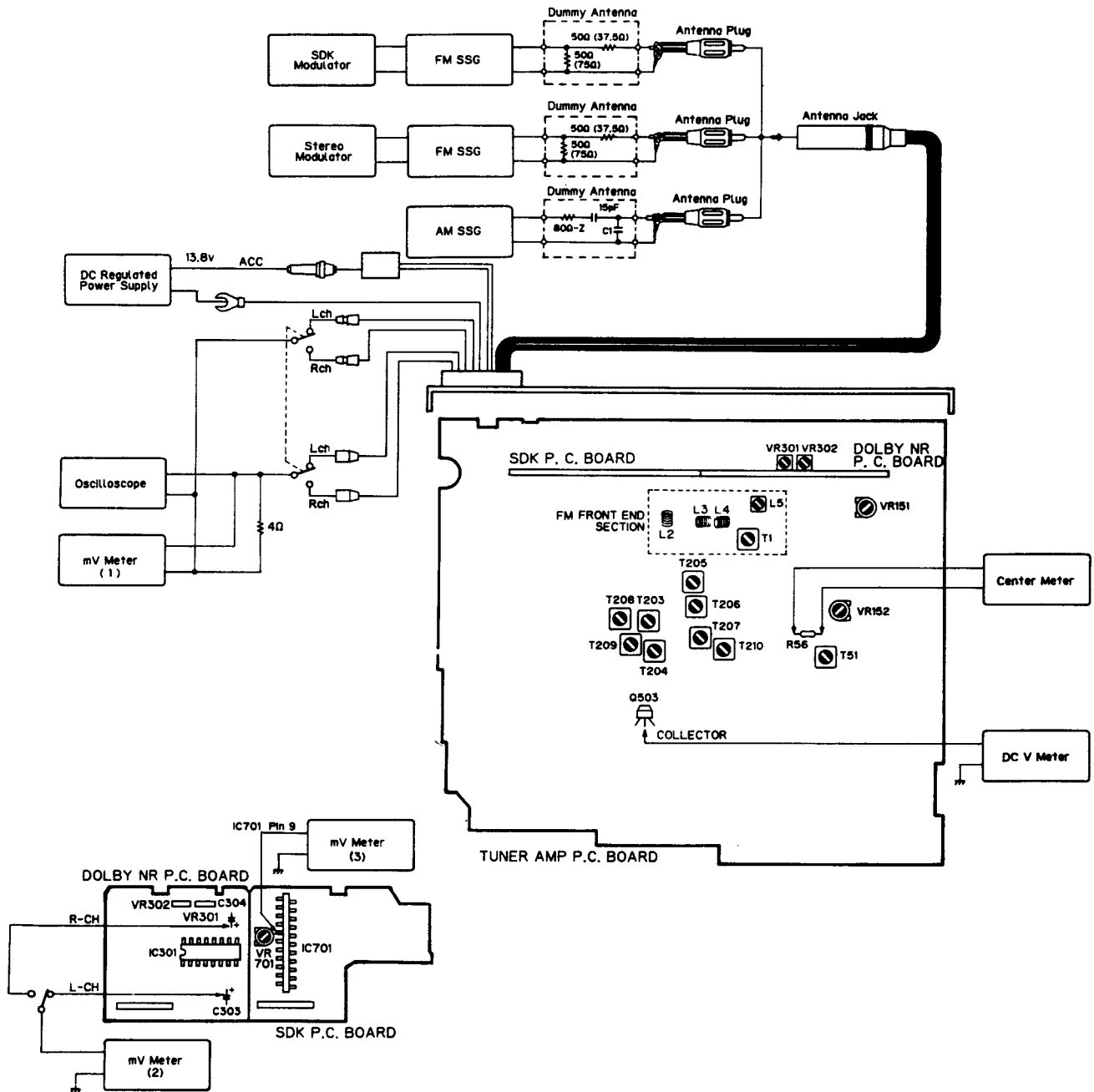


Fig. 7

DOLBY NR ADJUSTMENT  
(KEH-3400SDK/WG, KEH-3430B/EW)

No.	Cassette Tape	Adjusting Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz, 200nwb/m)	VR301 (Lch) VR302 (Rch)	mV Meter (2) : -6dBs±1dB (DOLBY NR Switch:OFF)

FM ADJUSTMENT    ※1 Stereo MOD. : Pilot=10%  
                                  ※2 Stereo MOD. : 1kHz, L+R=90% , Pilot=10%

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBf)			
Tuning Volt	1	—	—	108.0	L5	DC V Meter: 7.0V
Track- ing	1	98.1	15	98.1	L2, L4	mV Meter (1) : Maximum
	2	98.1	15	98.1	T1	mV Meter (1) : Maximum
IF	1	98.1 Unmodulated	65	98.1	T51	Center Meter: 0
Pil- ot Can- cel	1	98.1※1	65	98.1	VR151	mV Meter (1) : Minimum (MPX Filter: OFF)
ARC	1	98.1※2	40	98.1	VR152	mV Meter (1) : Separation 5dB

MW ADJUSTMENT  
(KEH-3400SDK/WG, KEH-2400SDK/WG, KEH-2400B/EW)

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1	—	—	531	T210	DC V Meter: 1.0V
Track- ing	1	603	20	603	T203, 204, 205, 206	mV Meter (1) : Maximum

MW/LW ADJUSTMENT  
(KEH-3430B/EW, KEH-2430B/EW)

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning Volt	1	—	—	531	T210	DC V Meter: 1.0V
	2	—	—	153	T207	DC V Meter: 3.3V
Track- ing	1	999	20	999	T203, 204, 205, 206	mV Meter (1) : Maximum
	2	216	20	216	T208, 209	mV Meter (1) : Maximum

SDK ADJUSTMENT    ※3 : SDK MOD. : SK (57kHz)=5%  
(KEH-3400SDK/WG, KEH-2400SDK/WG)

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBf)			
	1	98.1※3	65	98.1	VR701	mV Meter (3) : Maximum

## 7. BLOCK DIAGRAM

● KEH-3400SDK

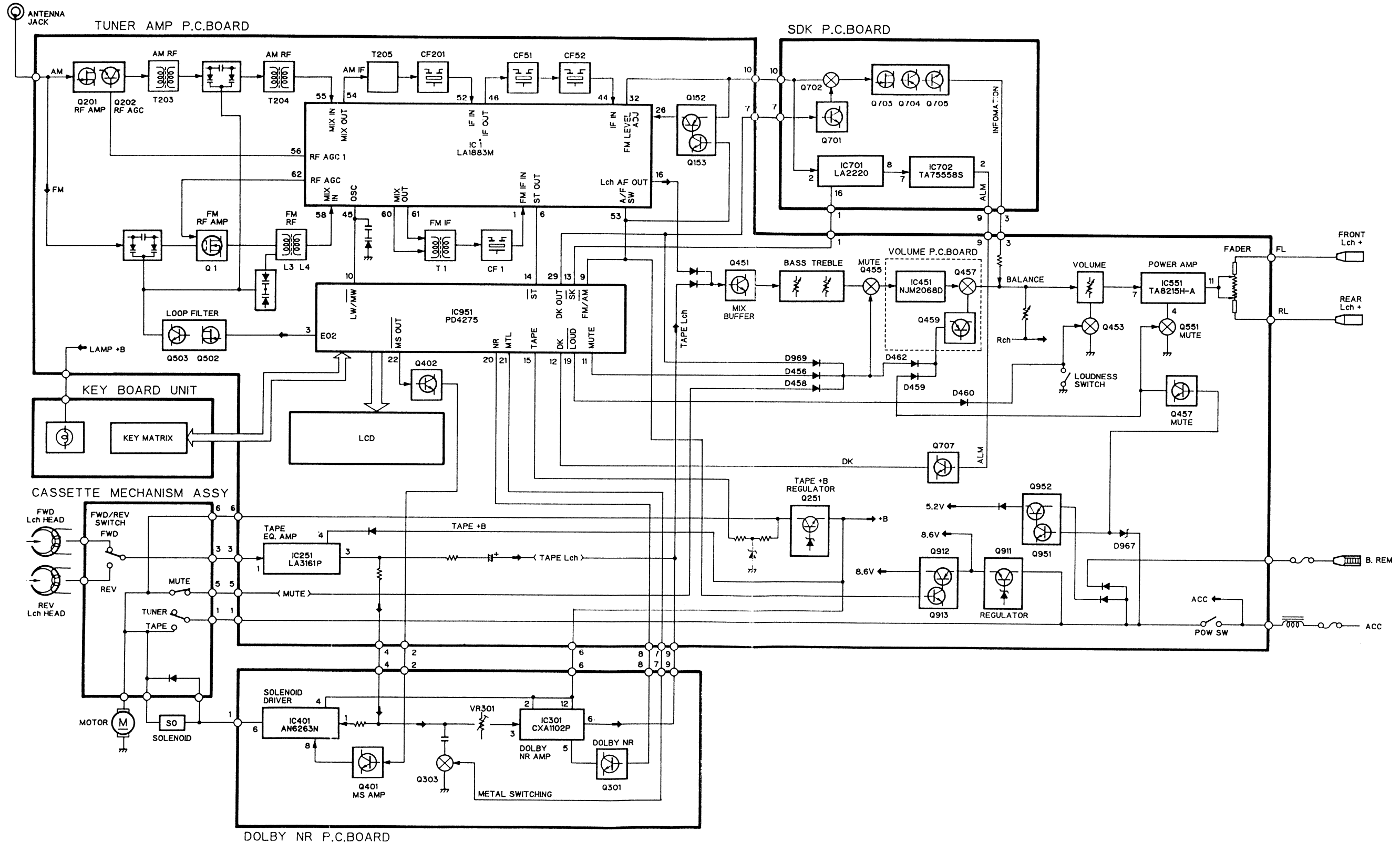
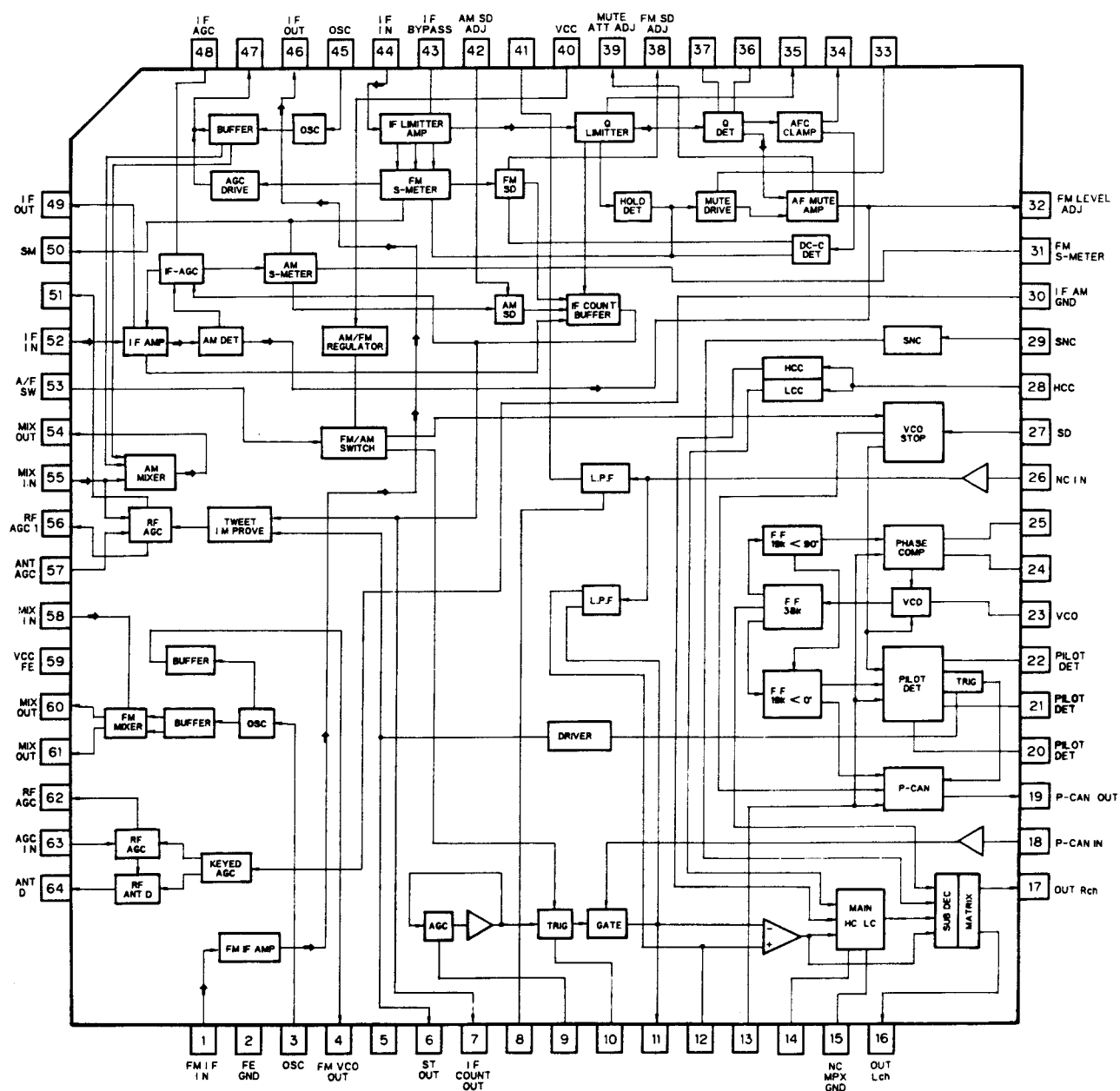


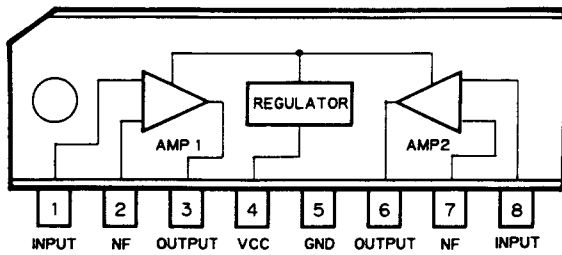
Fig. 8

● **ICs**

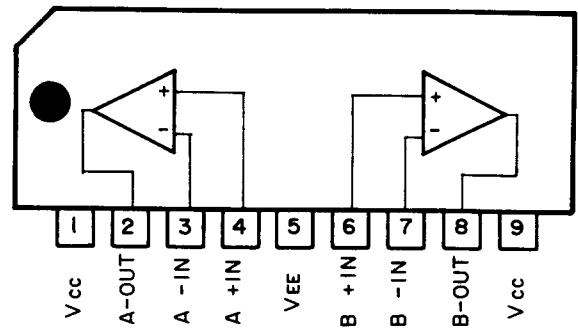
LA 1883M



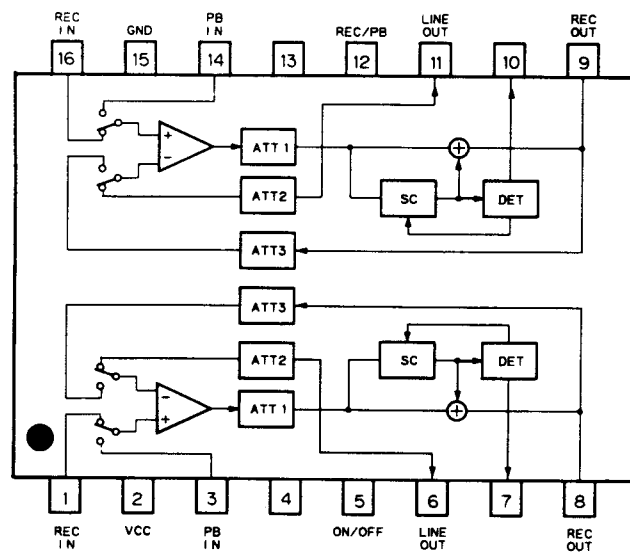
LA3161P



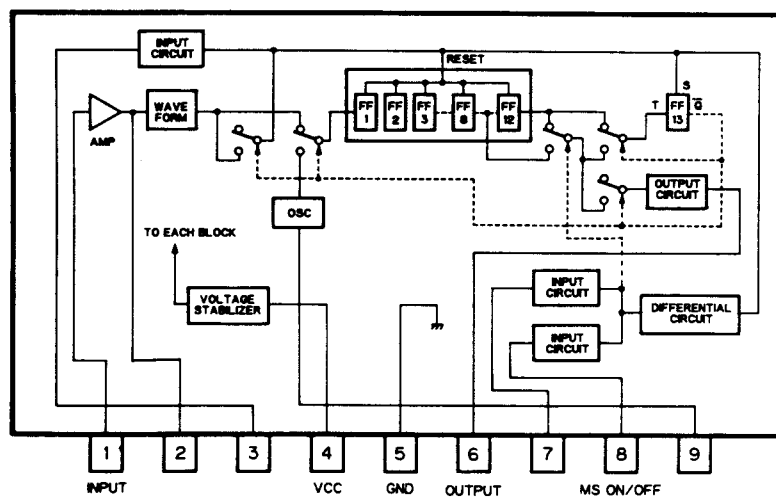
TA75558S



CXA1102P



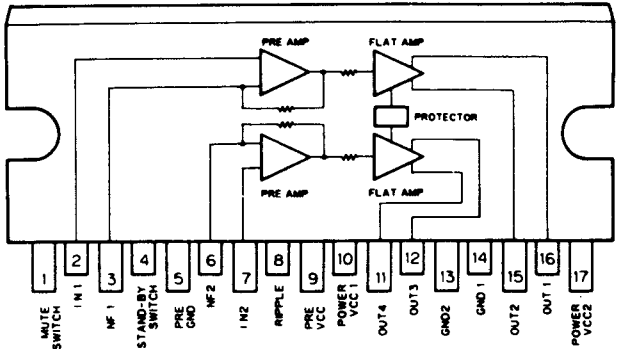
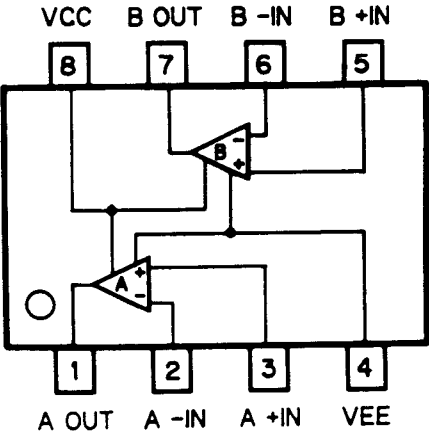
AN6263N





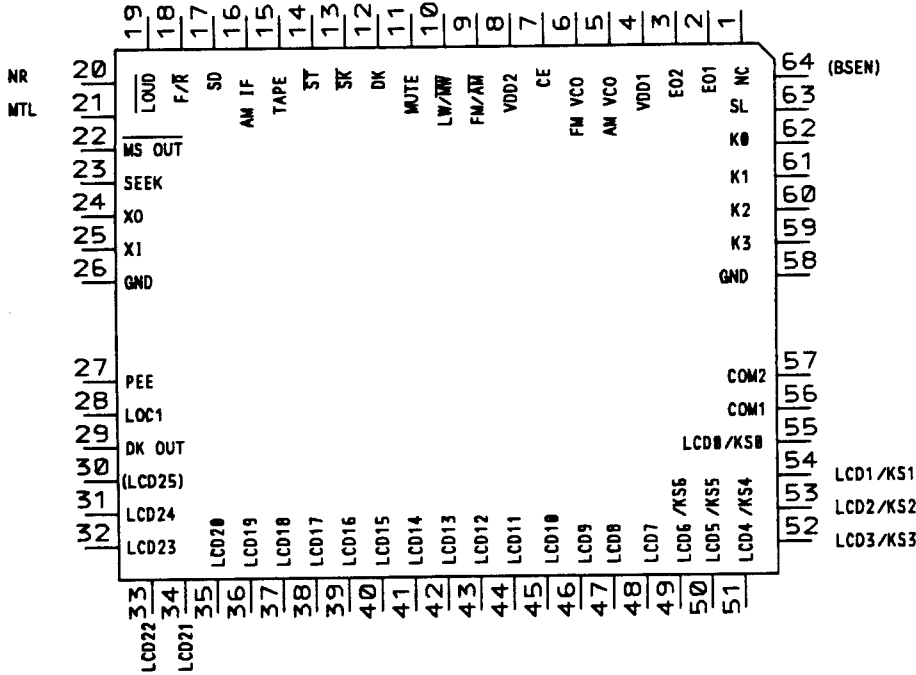
NJM2068D

TA8215H-A



\*PD4275

IC's marked by \* are MOS type.  
Be careful in handling them because they are very  
liable to be damaged by electrostatic induction.



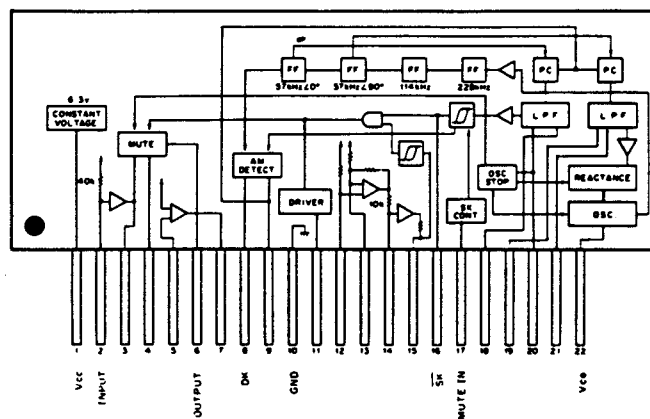
● Pin Function (PD4275)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	NC		C	Not used
2 3	EO1 EO2	Output	C(3)	PLL error output pins
4 8	VDD1 VDD2			Device power supply pin
5	VCOL	Input		AM local oscillator signal input pin
6	VCOH	Input		FM local oscillator signal input pin
7	CE	Input		Chip enable input pin
9	FM/AM	Output	C	FM/AM band select pin "H":FM "L":AM
10	LW	Output	C	Loop filter switching output pin "H":LW
11	MUTE	Output	C	Mute output pin "H":ON
12	DK	INPUT		SK signal input pin
13	SK	INPUT		DK signal input pin
14	ST	Input		Stereo broadcast detection signal input pin "L":Stereo indicator is displayed
15	TAPE	INPUT		Tape power ON/OFF input pin "H":ON
16	AMIF	Input		AM IF signal input pin
17	SD	Input		FM SD input "H":During broadcast reception
18	F/REV	Input		Tape motion signal input pin "H":Forward
19	LOUD	Input		Loudness ON/OFF signal input pin "L":ON
20	NR	Output	C	Dolby NR ON/OFF output pin "H":ON
21	METAL	Output	C	Tape METAL ON/OFF output pin "L":ON
22	MSOUT	Output	C	Tape MS ON/OFF output pin "L":ON
23	SEEK	Output	C	"H" level:SEEK, BSM, BSA and PSCAN
24 25	XO XI	Output Input	C	Quartz oscillator terminal
26	GND			GND terminal
27	PEE	Output	C	Alarm output pin
28	LOC1	Output	C	Halt sensitivity switching pin "L":DX SEEK (P. SCAN) "H":LOC SEEK
29	DKOUT	Output	C	Control by DK (terminal #12) input signal "H":DK input signal is detected as 125Hz
30	NC			Not used

Pin No.	Pin Name	I/O	Output Format	Function and Operation
31   55	LCD24   LCD0	Output	C	Segment signal output pins to LCD
48   55	KS7   KS0	Output	C	Key matrix strobe output pins
56 57	COM1 COM2	Output	C	Common signal output pins to LCD
59   62	K3   K0	Input		Key matrix return input pins
63	SL	Input		AM station level analog input pin
64	NC		C	Not used

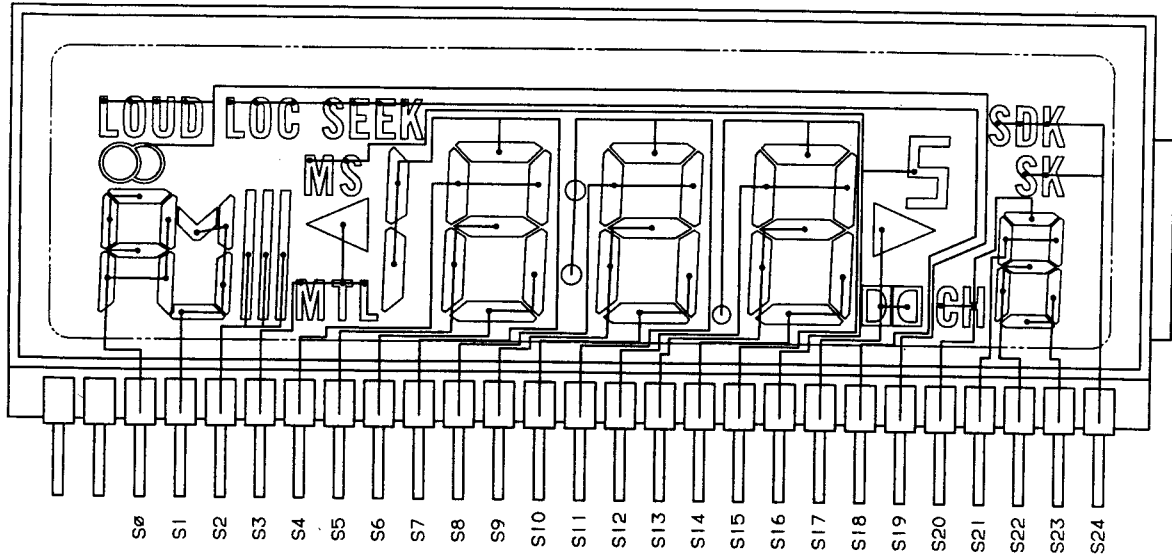
Output format	Meaning
C	C-MOS
C(3)	C-MOS(3 State)

LA2220

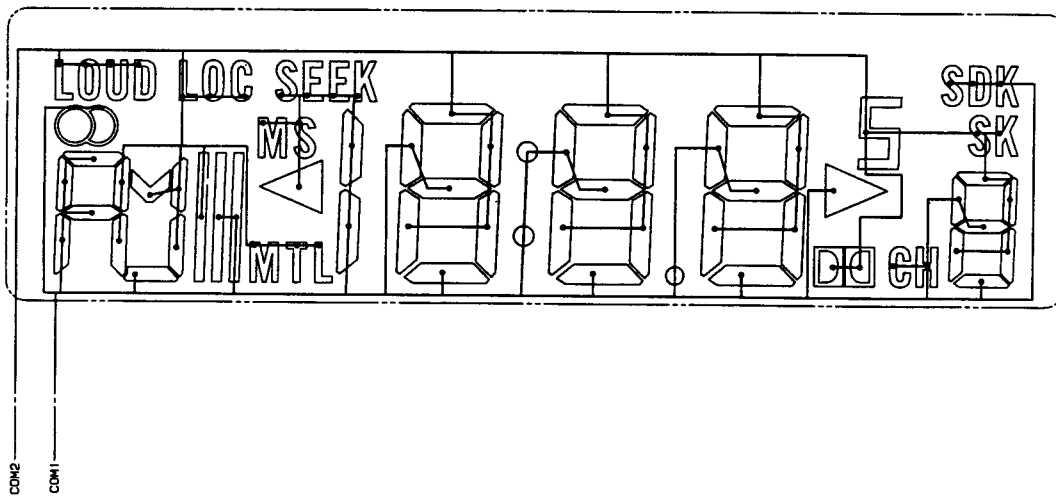


● LCD(CAW1162)

## SEGMENT



## COMMON





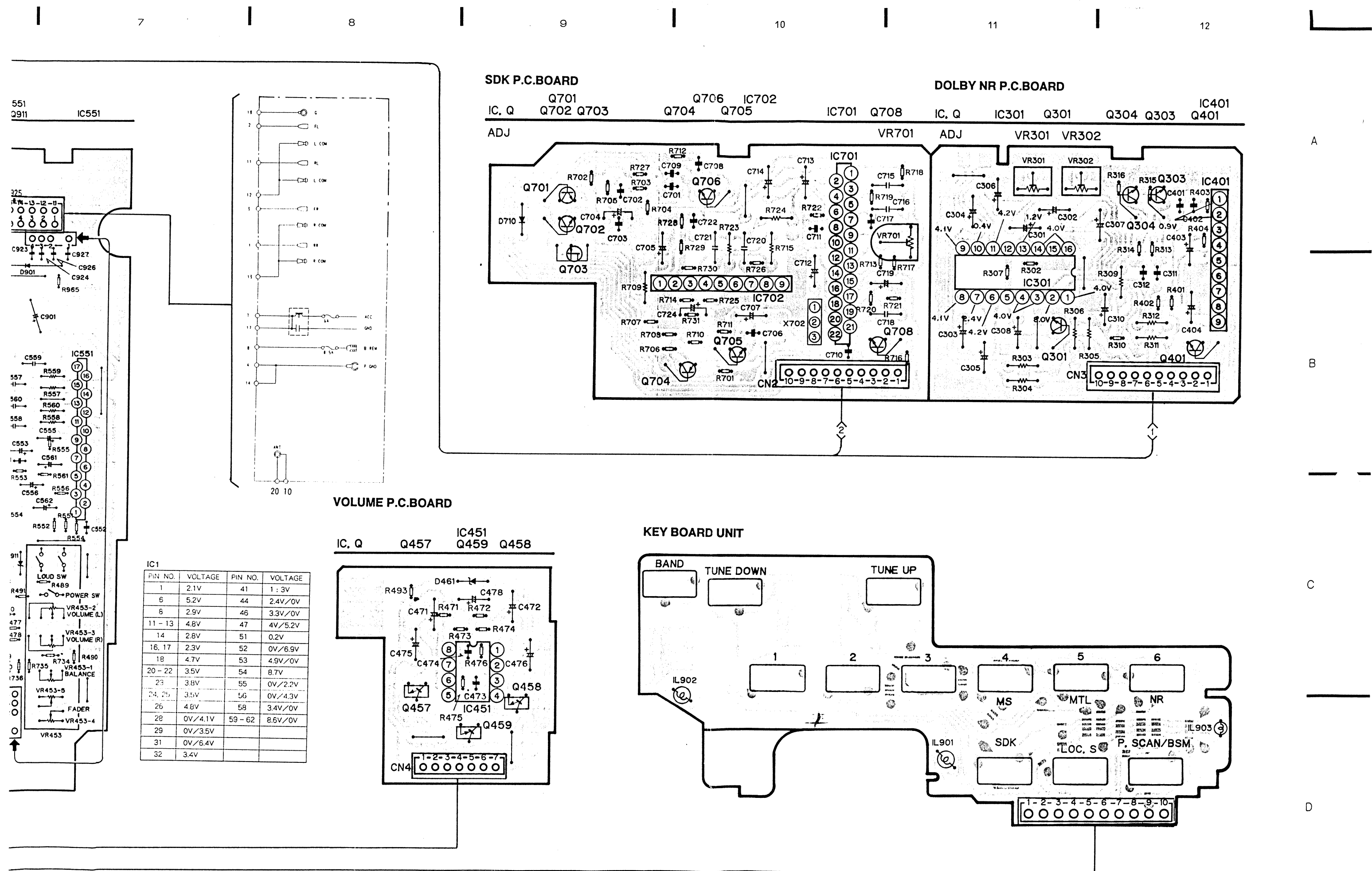
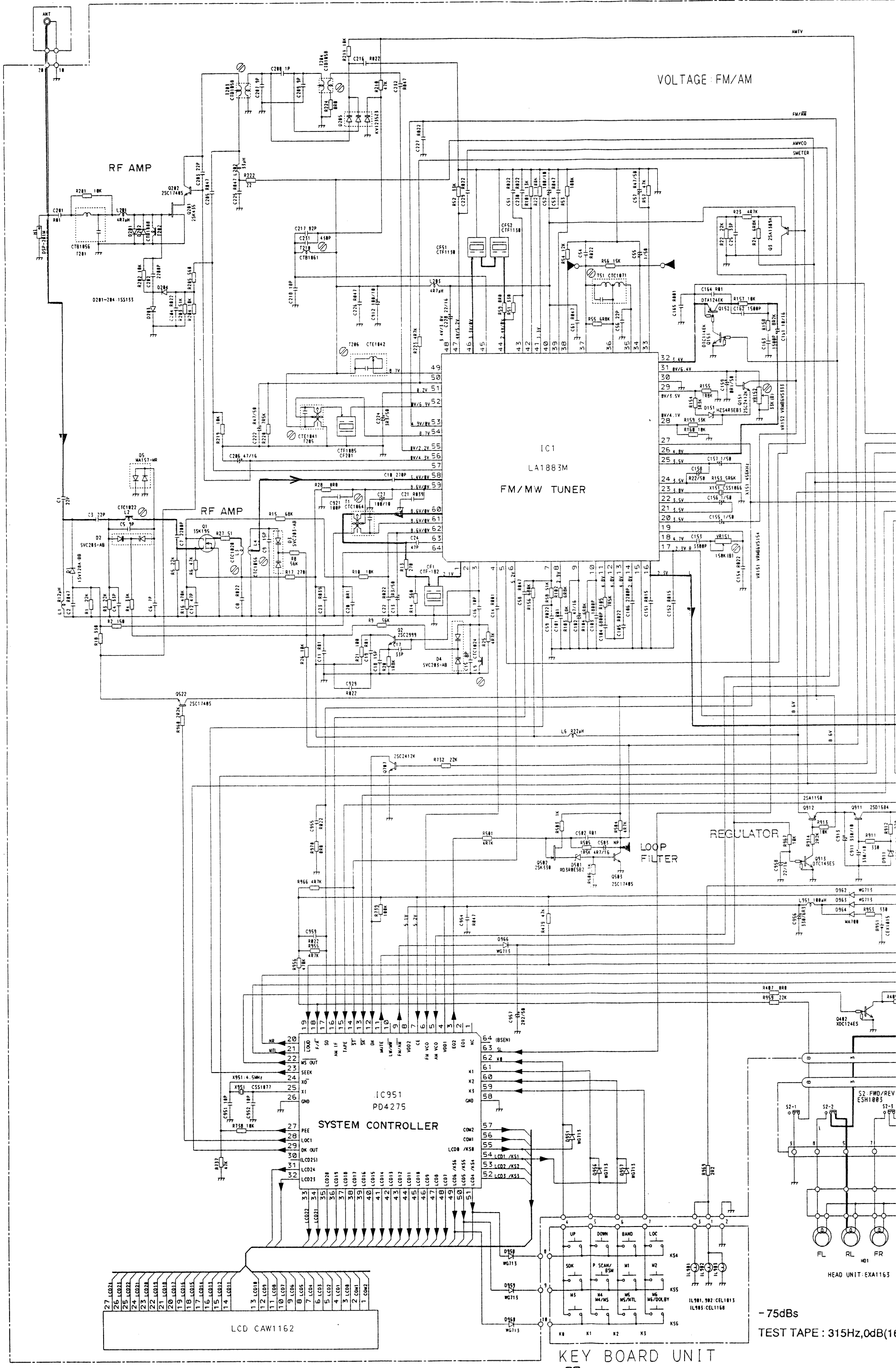


Fig. 9

## 9. SCHEMATIC CIRCUIT DIAGRAM (KEH-3400SDK)



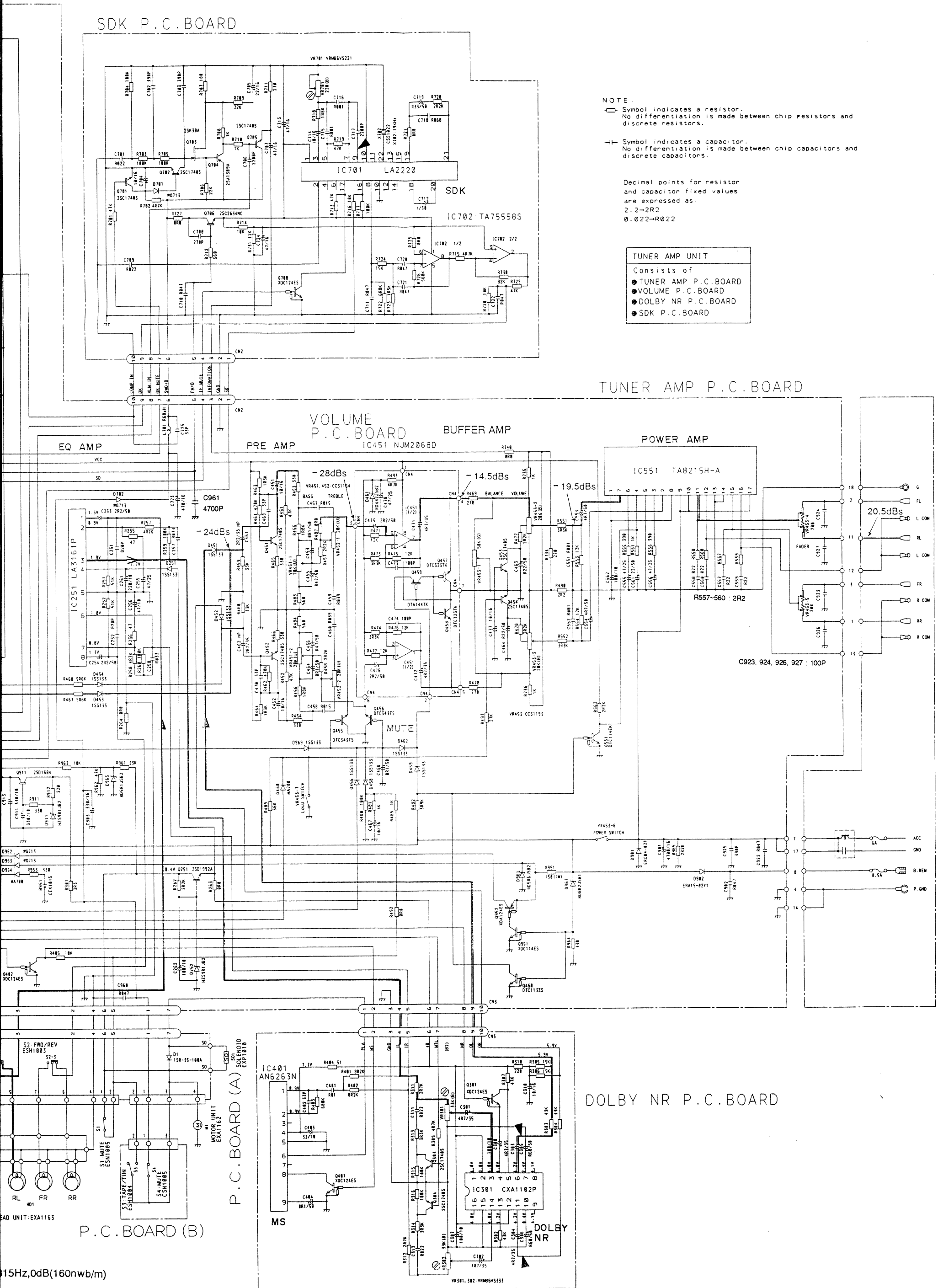
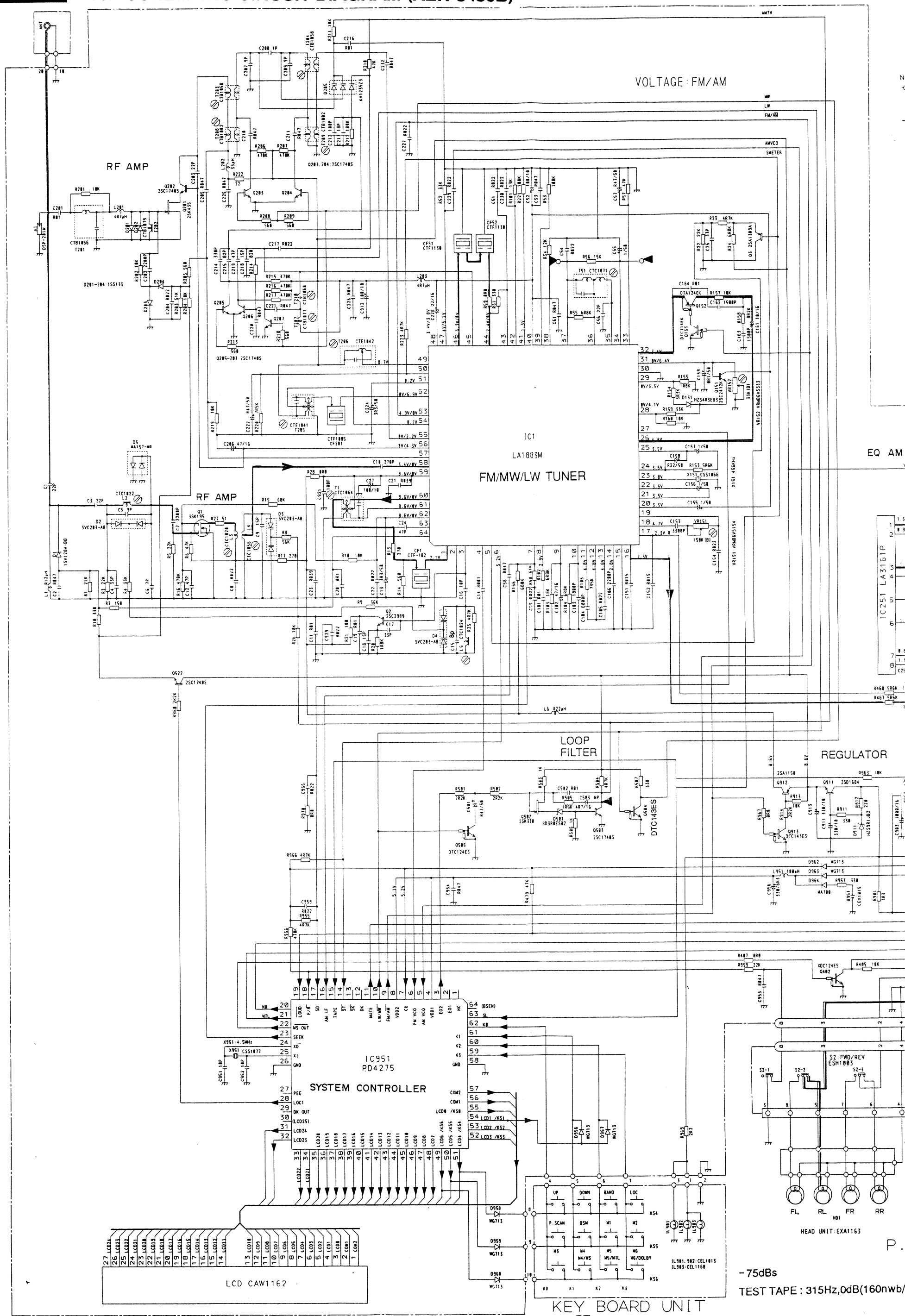


Fig. 10



## 10. SCHEMATIC CIRCUIT DIAGRAM (KEH-3430B)



NOTE

- Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.
- |— Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:  
2.2→2R2  
0.022→R022

TUNER AMP UNIT

Consists of

- TUNER AMP P.C. BOARD
- VOLUME P.C. BOARD
- DOLBY NR P.C. BOARD

TUNER AMP P.C. BOARD

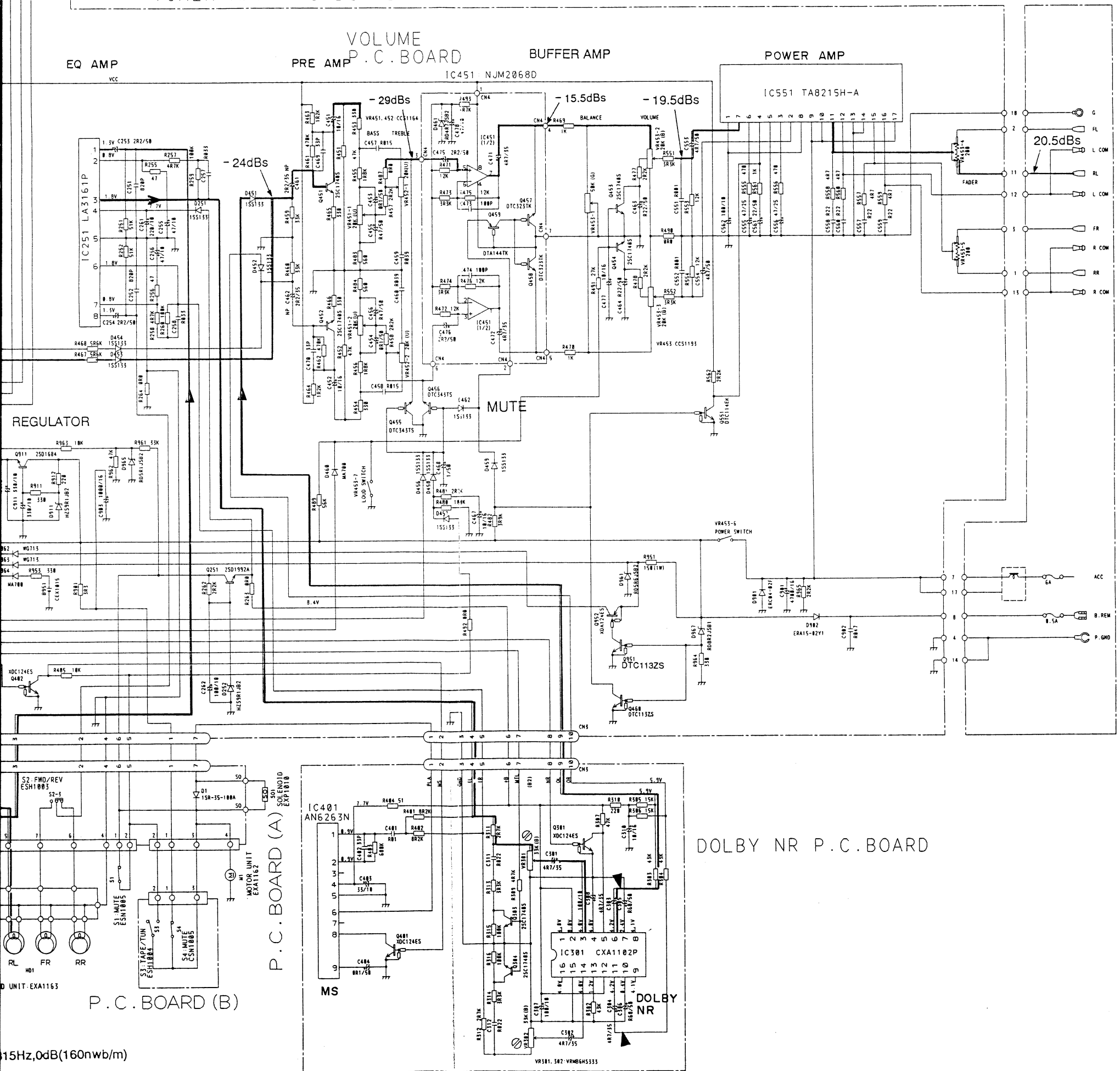
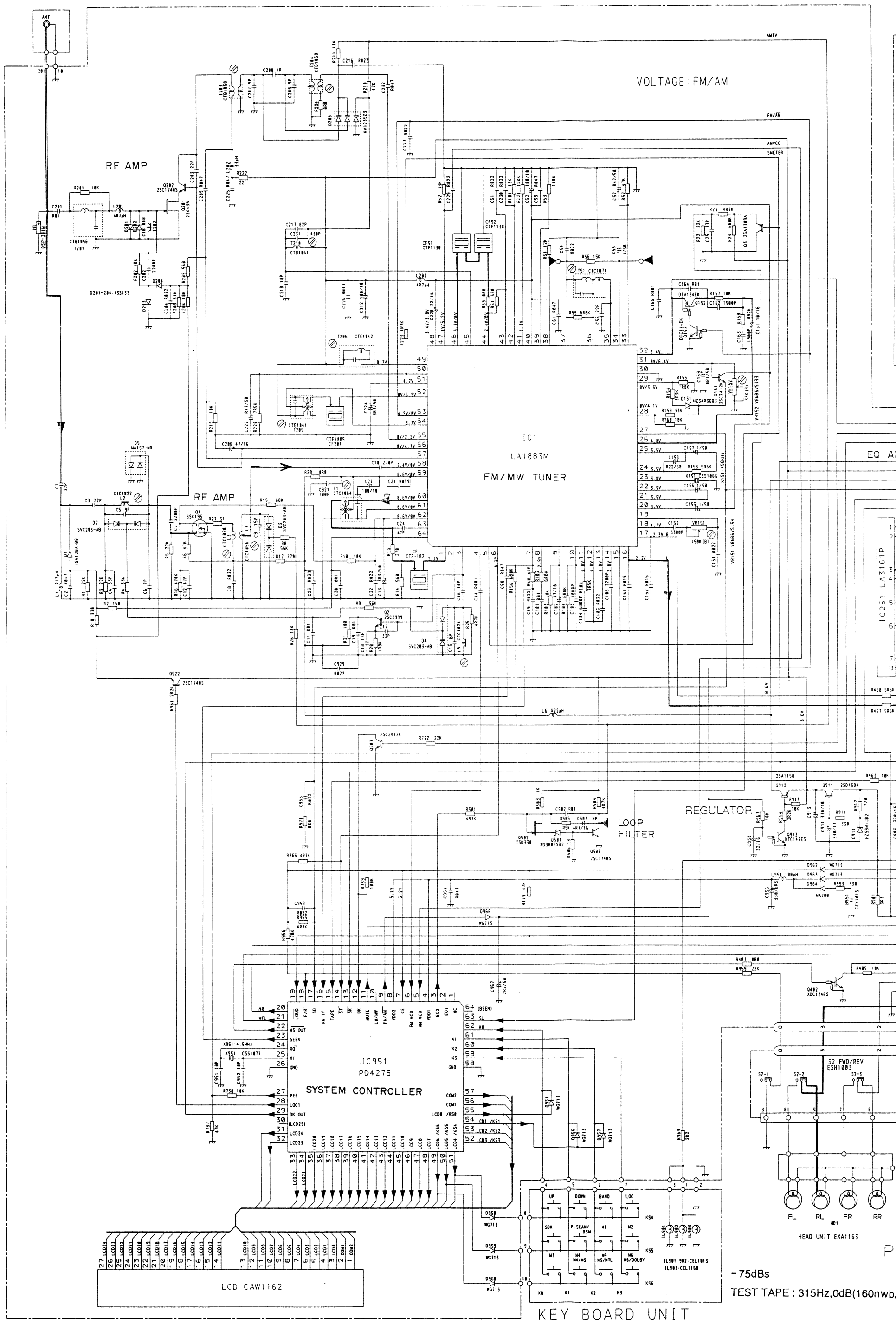
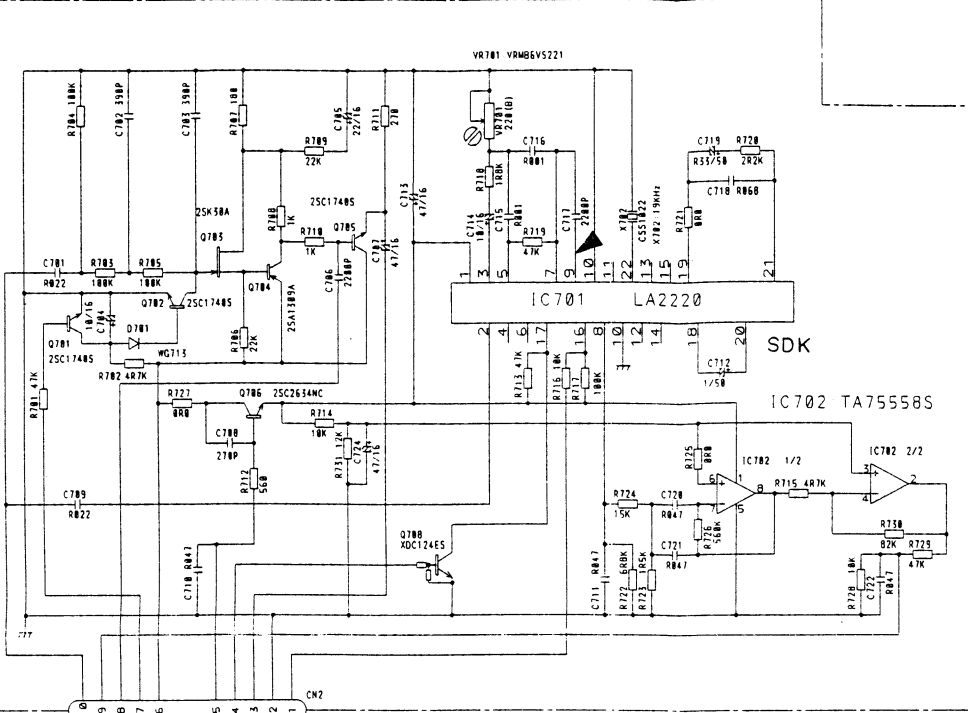


Fig. 11

## 9. SCHEMATIC CIRCUIT DIAGRAM (KEH-3400SDK)



SDK P.C. BOARD



NOTE:  
 □ Symbol indicates a resistor.  
 No differentiation is made between chip resistors and discrete resistors.

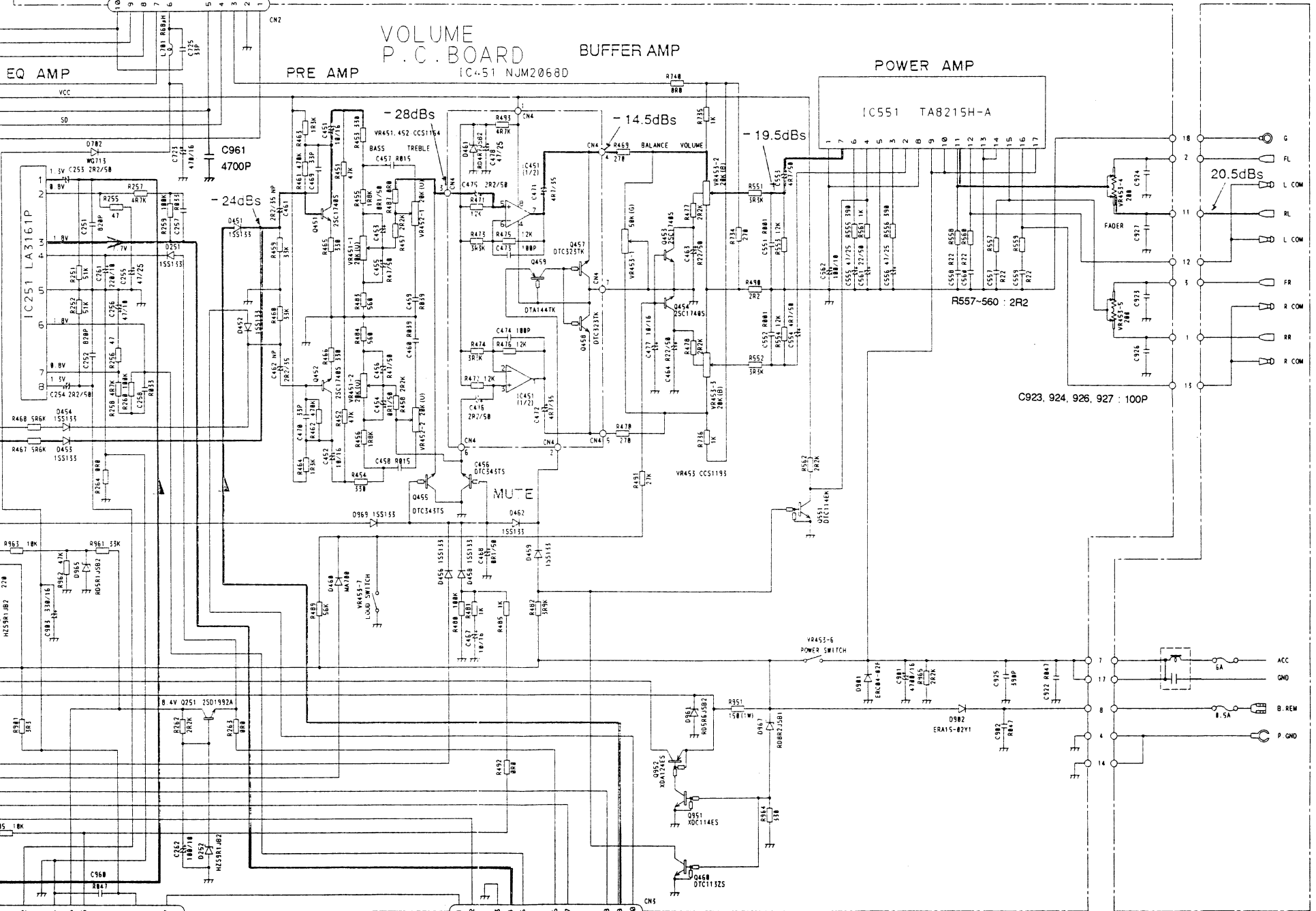
⊢ Symbol indicates a capacitor.  
 No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:  
 2.2-2R2  
 0.022-R022

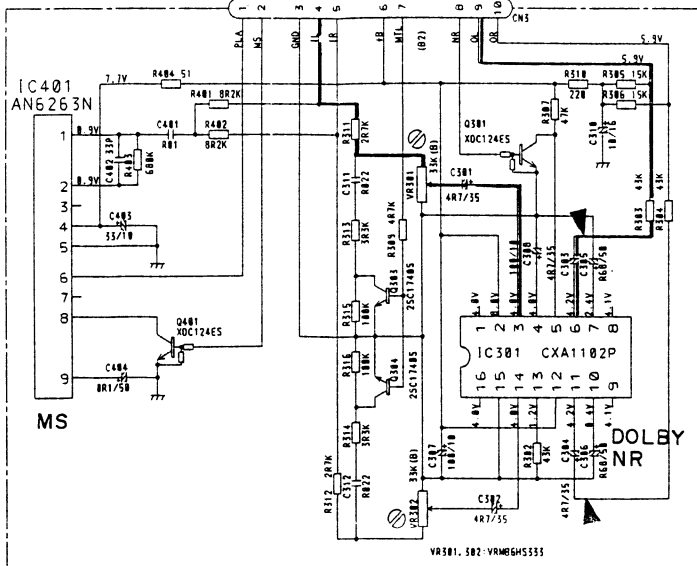
TUNER AMP UNIT

- Consists of
- TUNER AMP P.C. BOARD
  - VOLUME P.C. BOARD
  - DOLBY NR P.C. BOARD
  - SDK P.C. BOARD

TUNER AMP P.C. BOARD



DOLBY NR P.C. BOARD



P.C. BOARD (A)

P.C. BOARD (B)

## 6



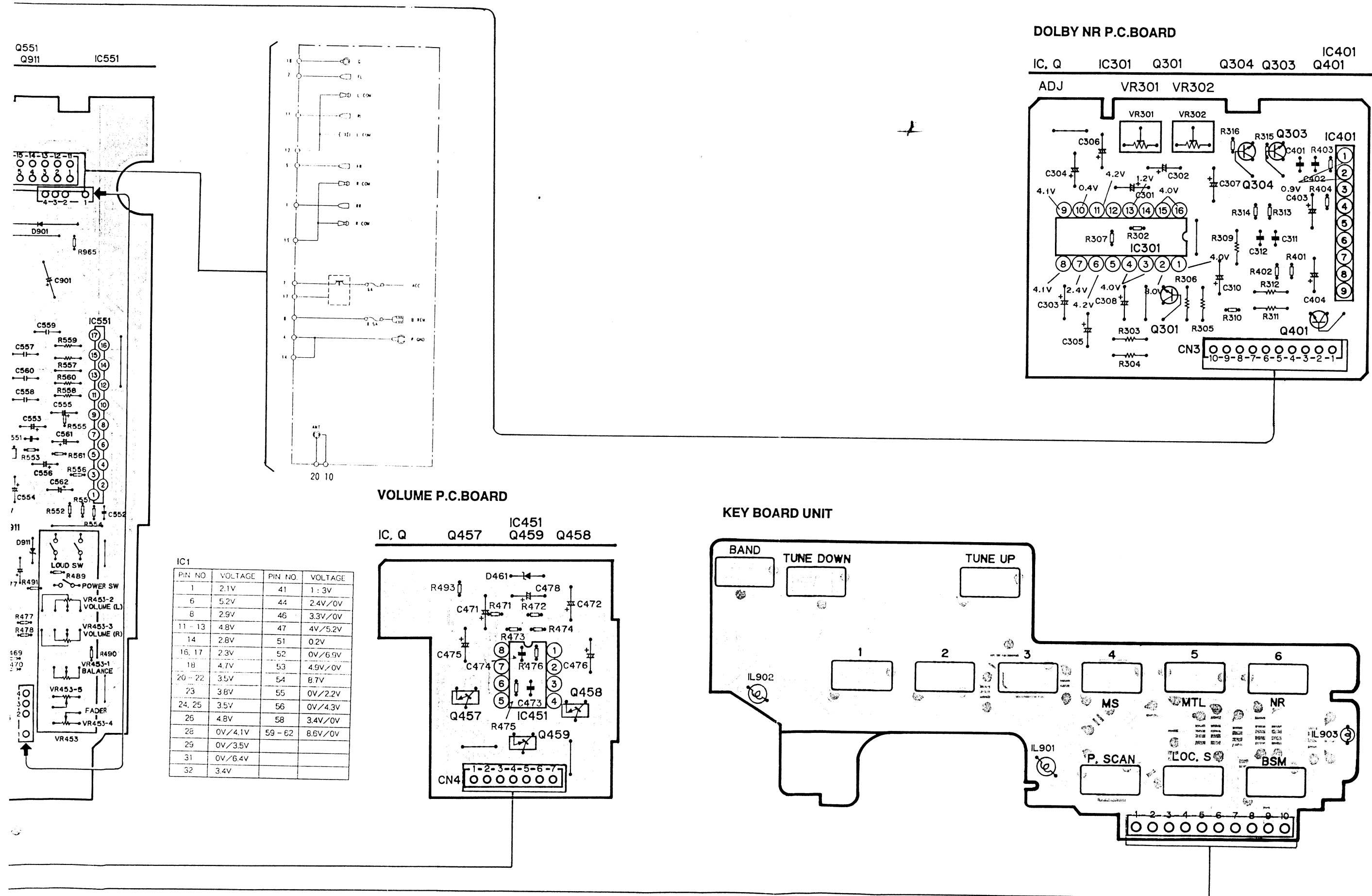


Fig. 12





A

B

C

D

Q551  
Q911

IC551

C925

C923

C926

C924

D901

R965

C901

C559

C557

C560

C558

C553

R553

C556

C554

D911

R477

R478

R736

R735

R490

VR453-2

VR453-3

VR453-1

VR453-5

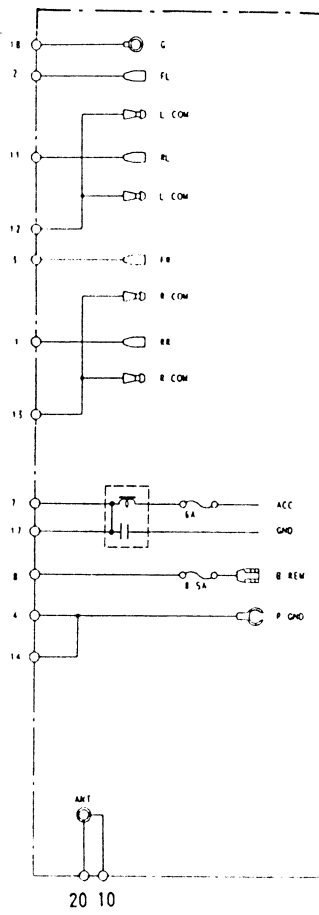
FADER

VR453-4

VR453

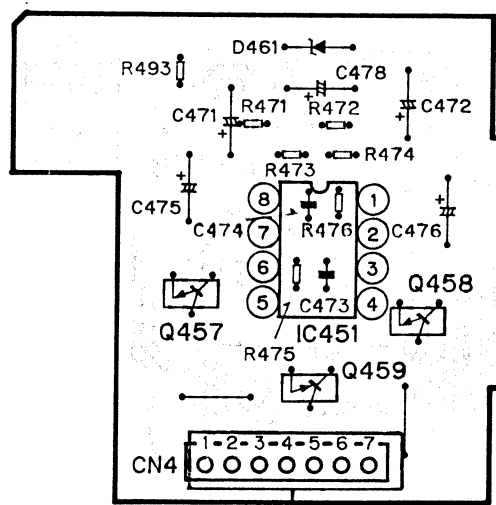
IC1

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.1V	41	1 : 3V
6	5.2V	44	2.4V/0V
8	2.9V	46	3.3V/0V
11 - 13	4.8V	47	4V/5.2V
14	2.8V	51	0.2V
16, 17	2.3V	52	0V/6.9V
18	4.7V	53	4.9V/0V
20 - 22	3.5V	54	8.7V
23	3.8V	55	0V/2.2V
24, 25	3.5V	56	0V/4.3V
26	4.8V	58	3.4V/0V
28	0V/4.1V	59 - 62	8.6V/0V
29	0V/3.5V		
31	0V/6.4V		
32	3.4V		



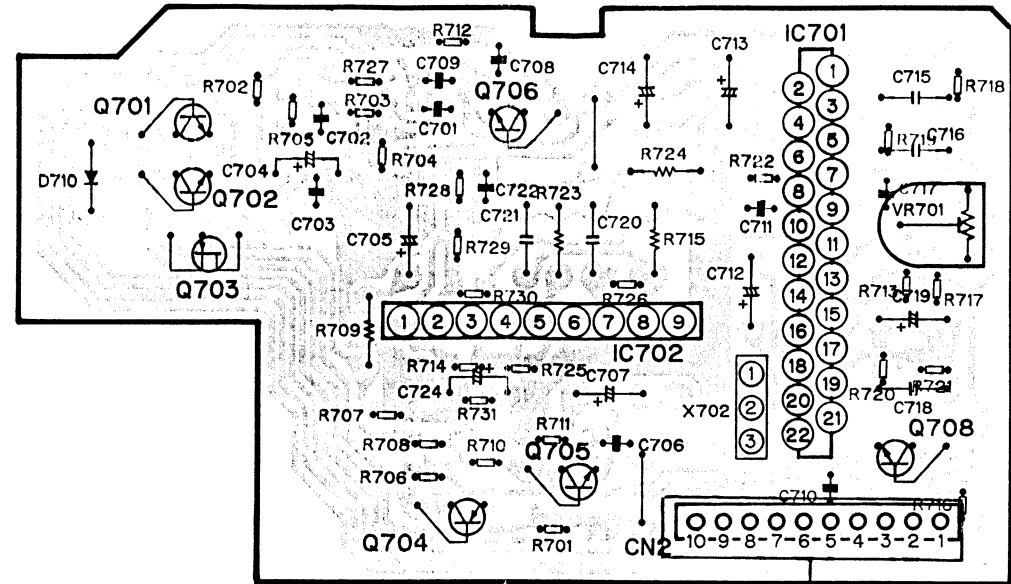
VOLUME P.C. BOARD

IC, Q Q457 IC451 Q459 Q458



SDK P.C. BOARD

IC, Q Q701 Q702 Q703 Q704 Q705 Q706 Q708 IC701 IC702 VR701



KEY BOARD UNIT

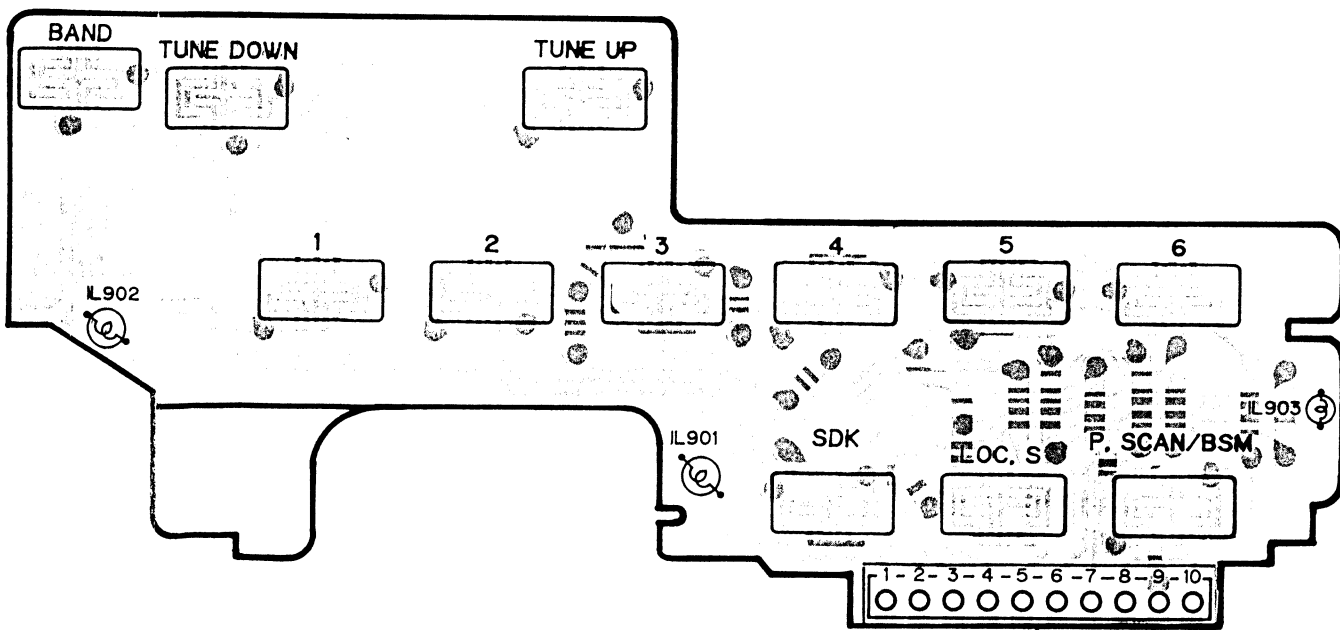
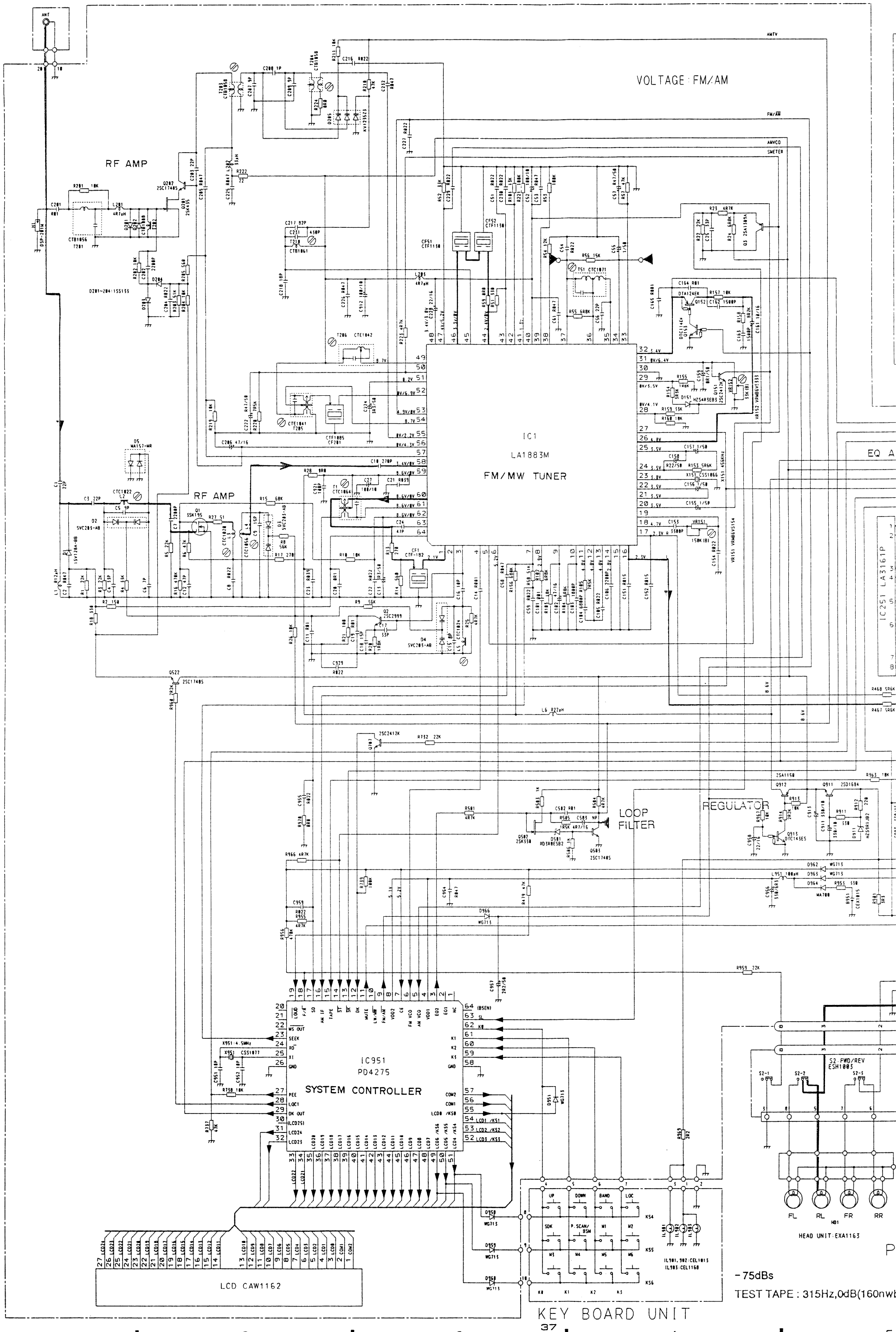


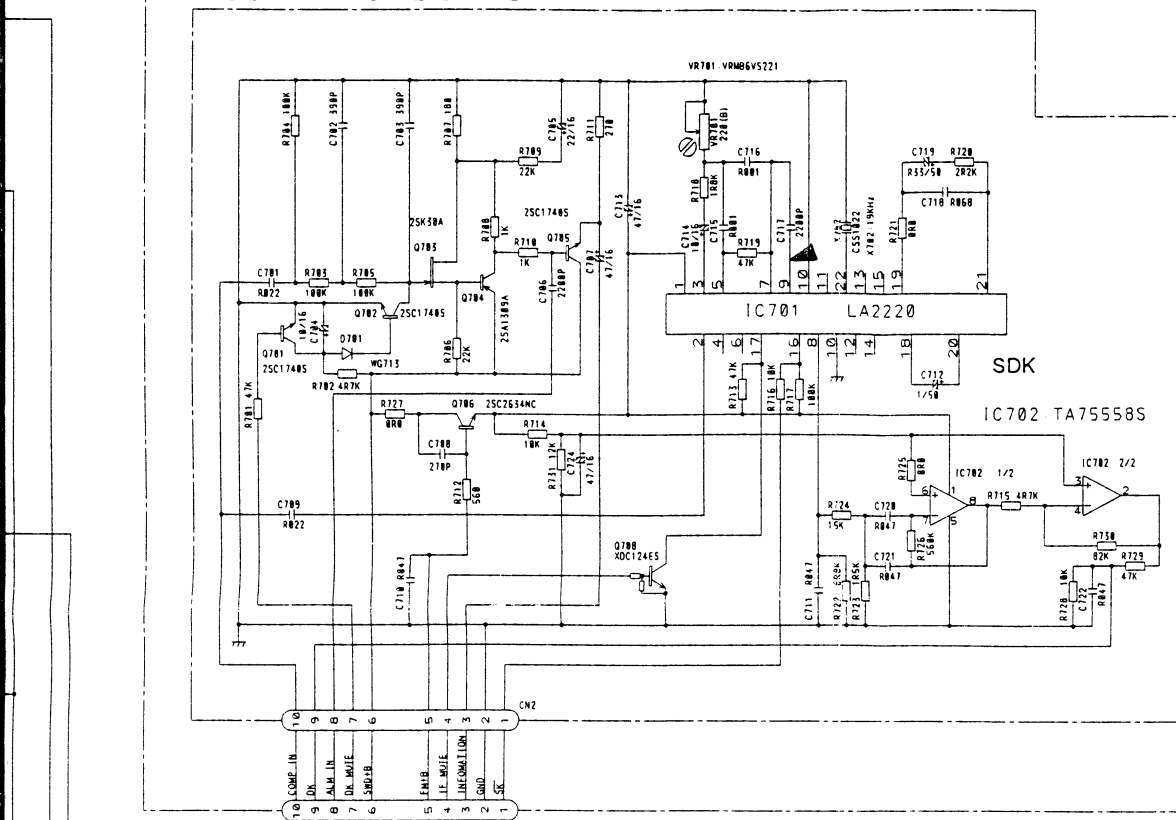
Fig. 13



### 13. SCHEMATIC CIRCUIT DIAGRAM (KEH-2400SDK)



## SDK P.C. BOARD



## NOTE

Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.

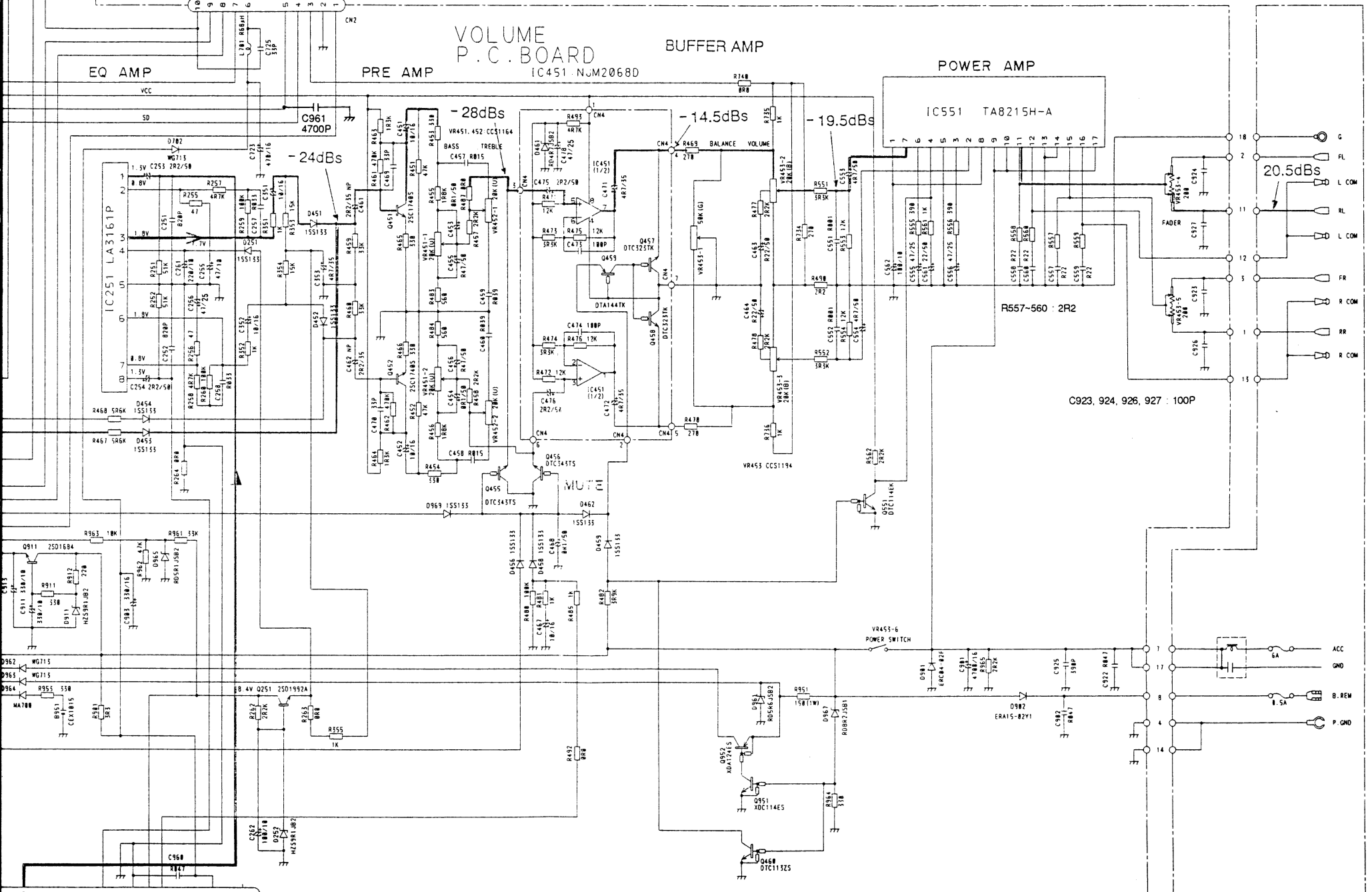
Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor  
and capacitor fixed values  
are expressed as:  
2.2-2R2  
0.022-R022

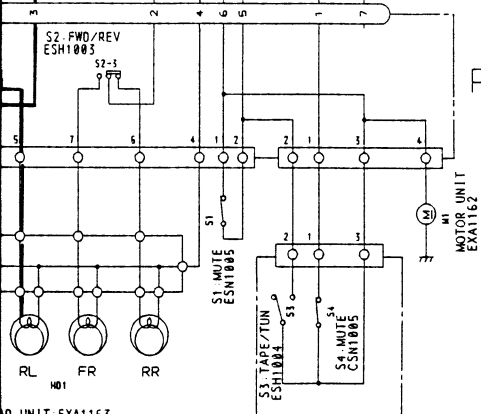
## TUNER AMP UNIT

Consists of  
● TUNER AMP P.C. BOARD  
● VOLUME P.C. BOARD  
● DOLBY NR P.C. BOARD

## TUNER AMP P.C. BOARD

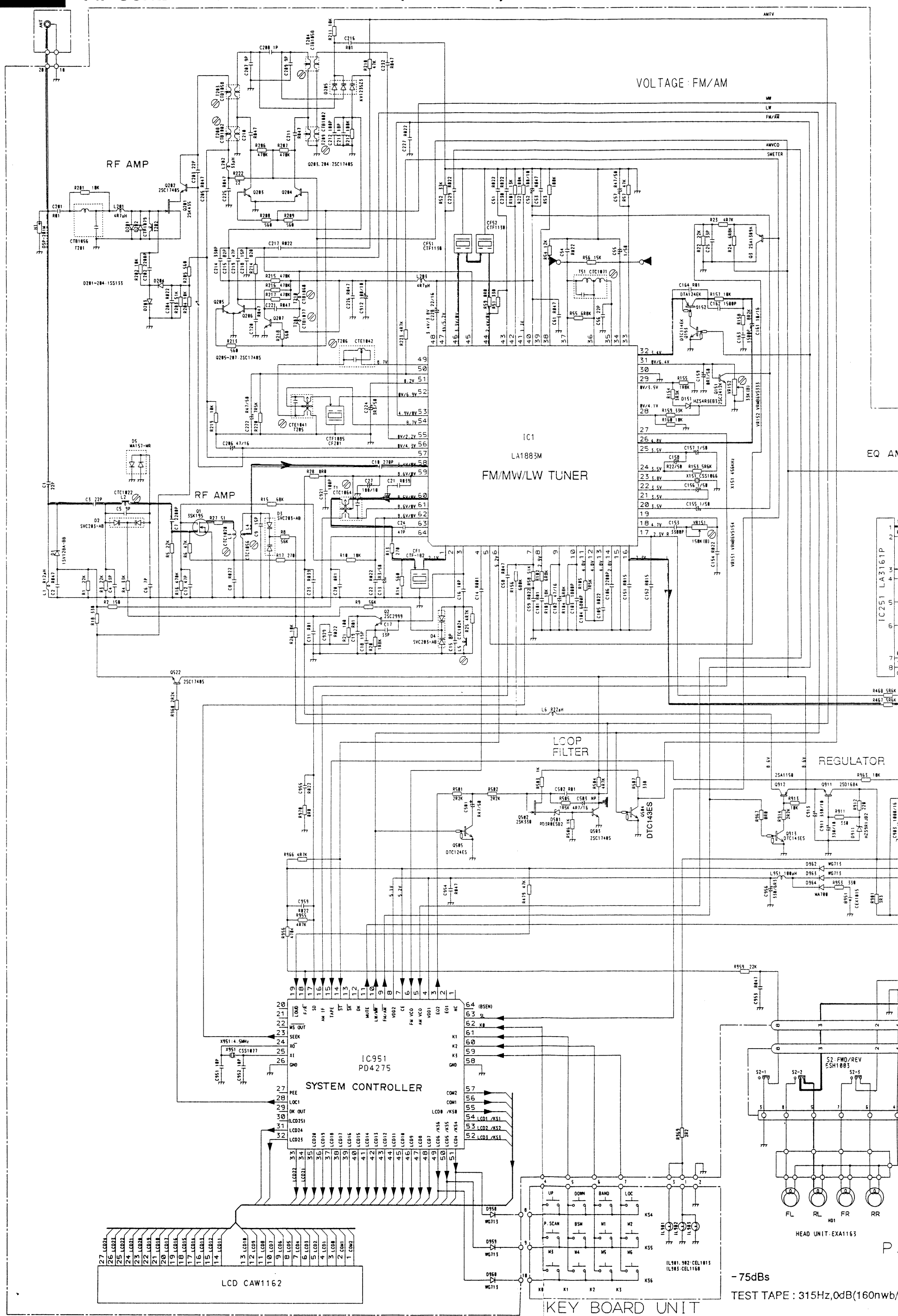


## P.C. BOARD (A)



## P.C. BOARD (B)

UNIT: EXA1163

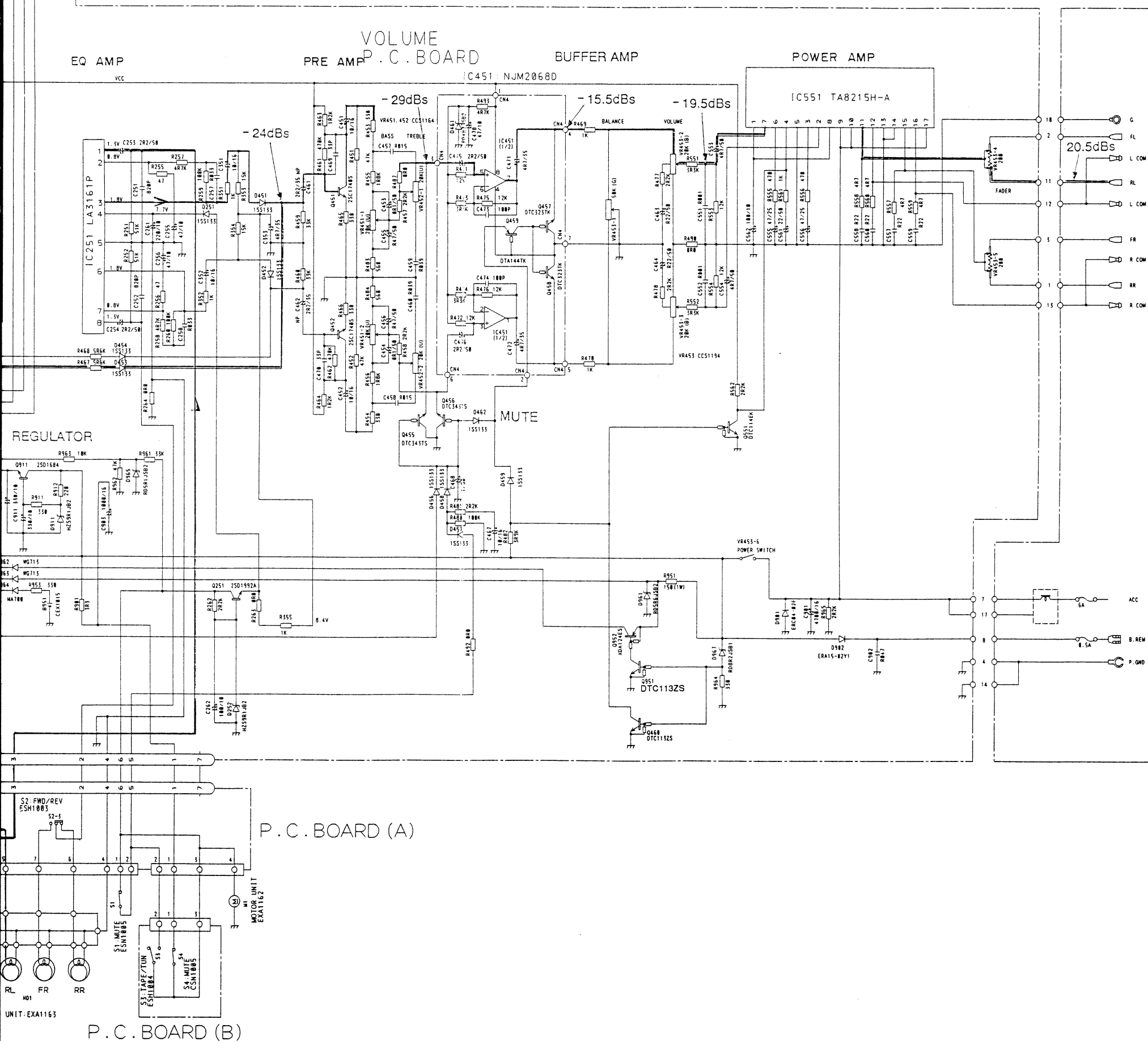


NOTE:  
 □ Symbol indicates a resistor.  
 No differentiation is made between chip resistors and discrete resistors.  
 —|— Symbol indicates a capacitor.  
 No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:  
 2.2→2R2  
 0.022→R022

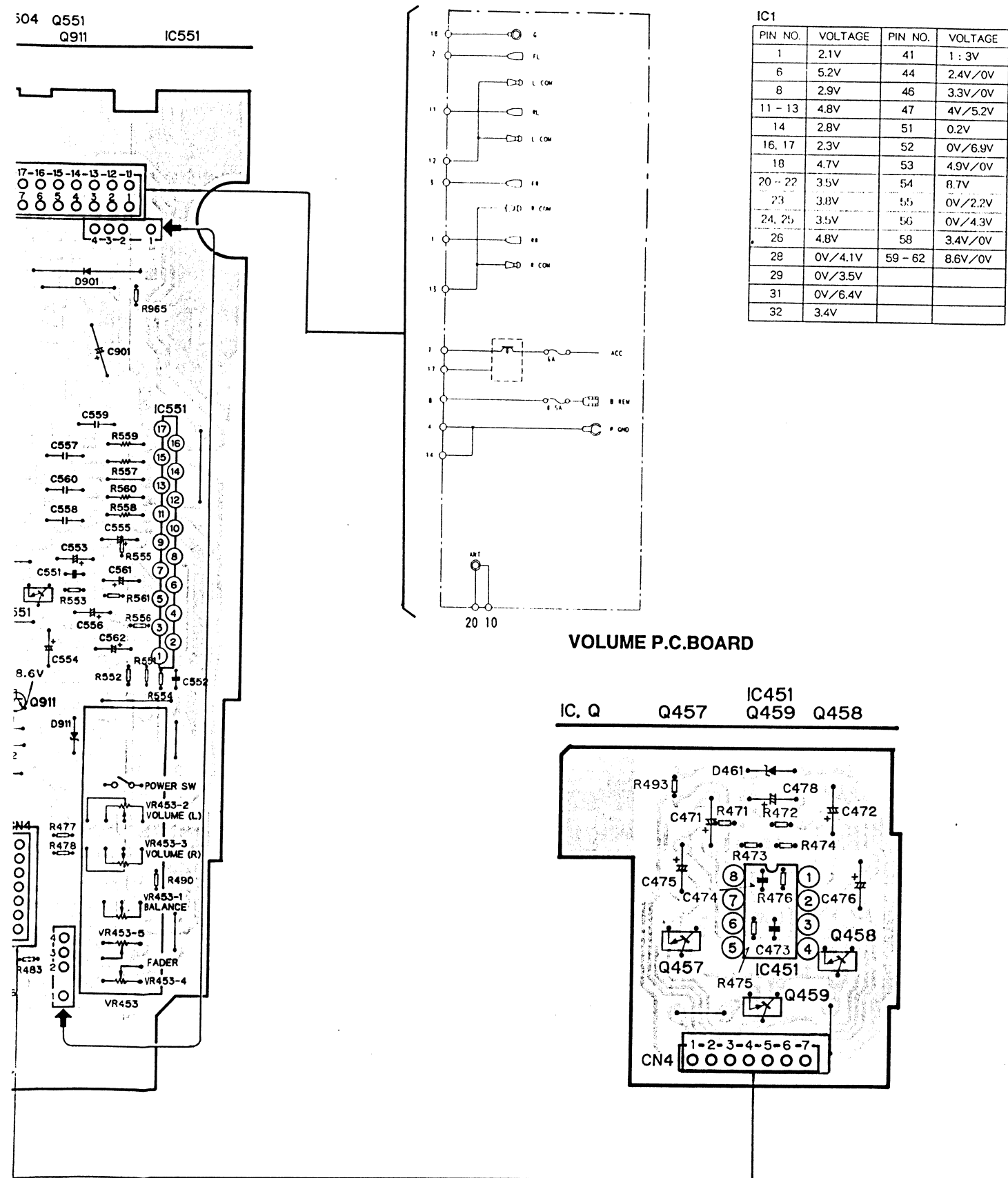
TUNER AMP UNIT  
 Consists of  
 ● TUNER AMP P.C. BOARD  
 ● VOLUME P.C. BOARD

TUNER AMP P.C. BOARD



## 6





KEY BOARD UNIT

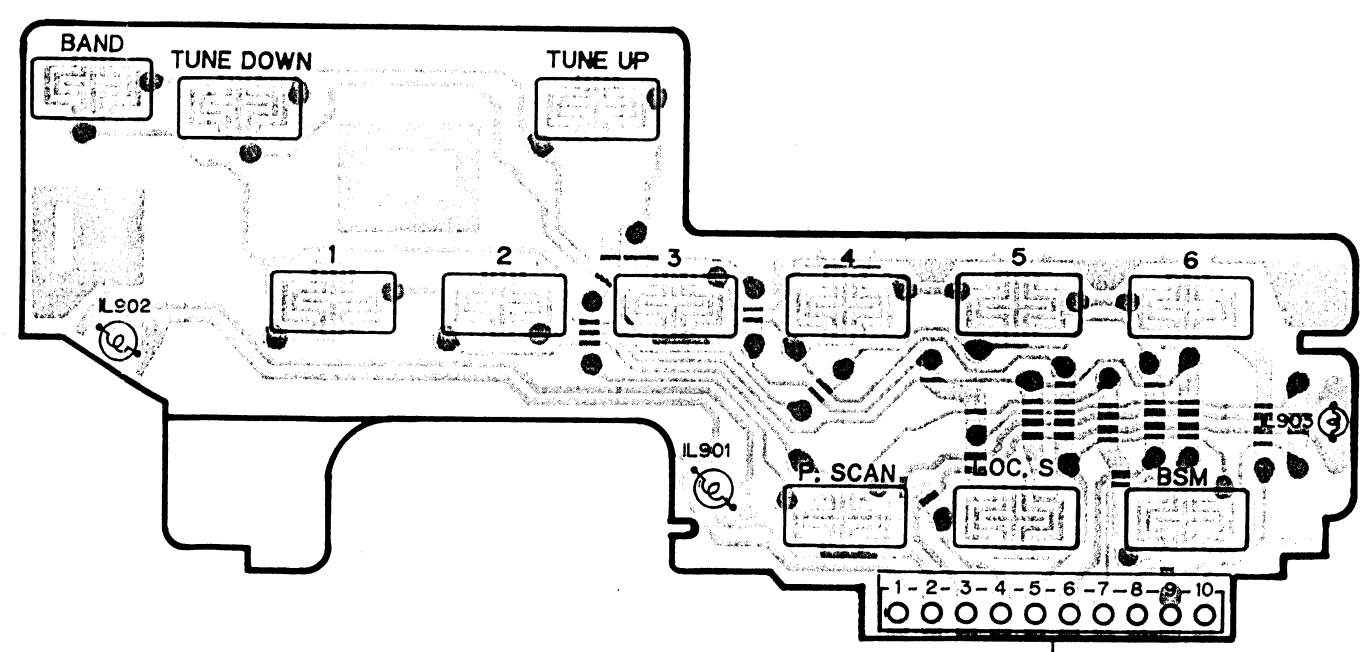


Fig. 16



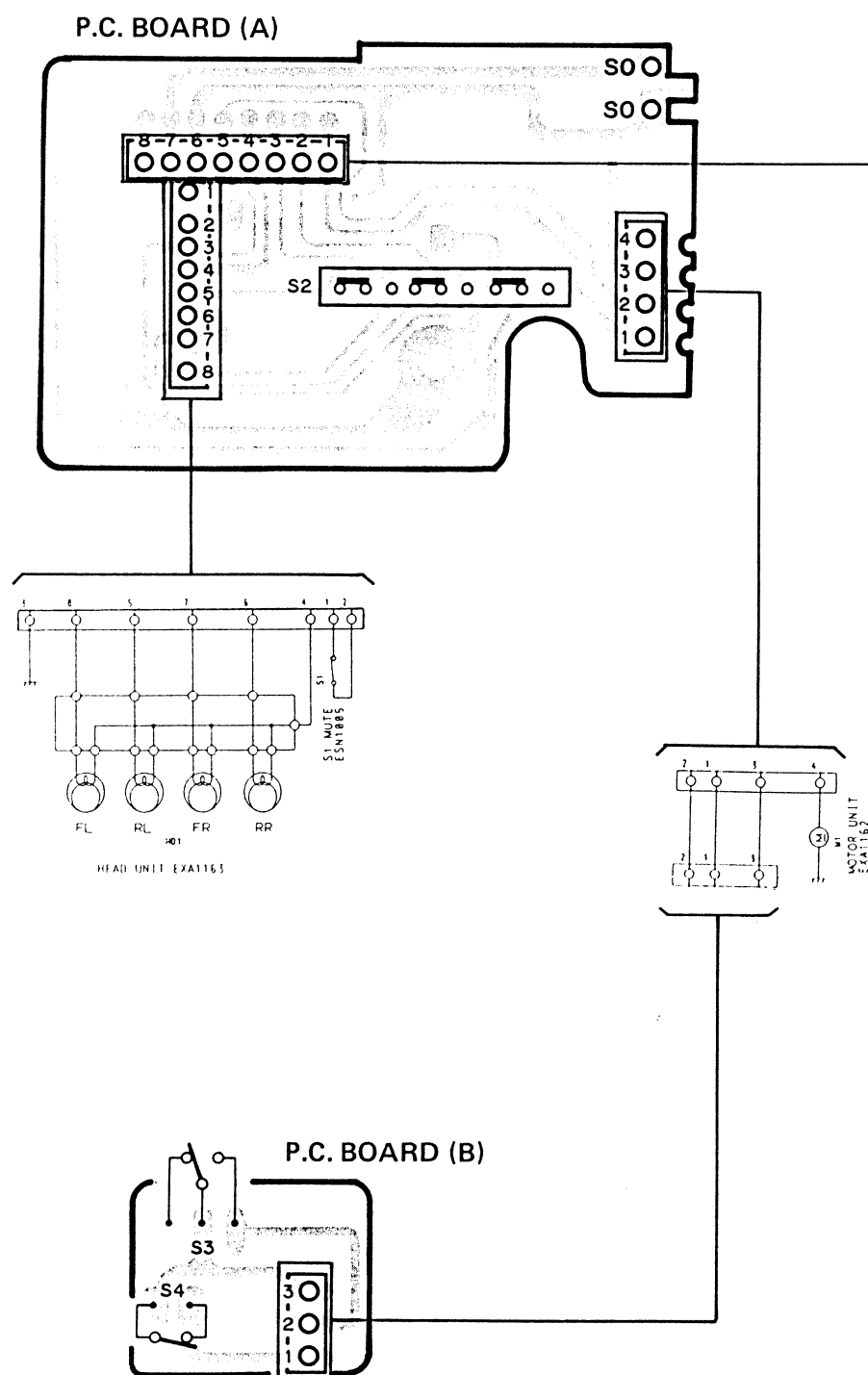
## 16. CONNECTION DIAGRAM (KEH-2400B)

A

B

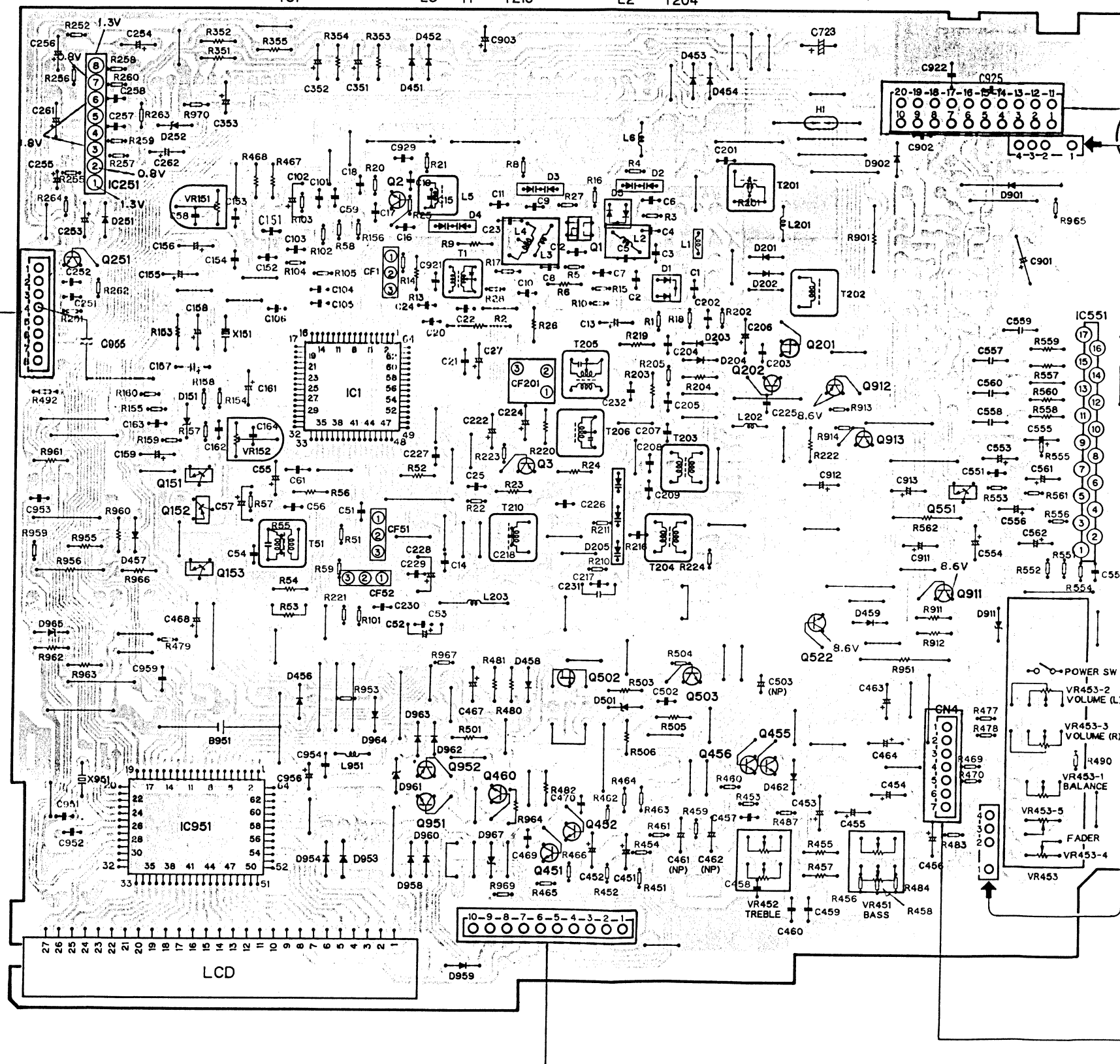
C

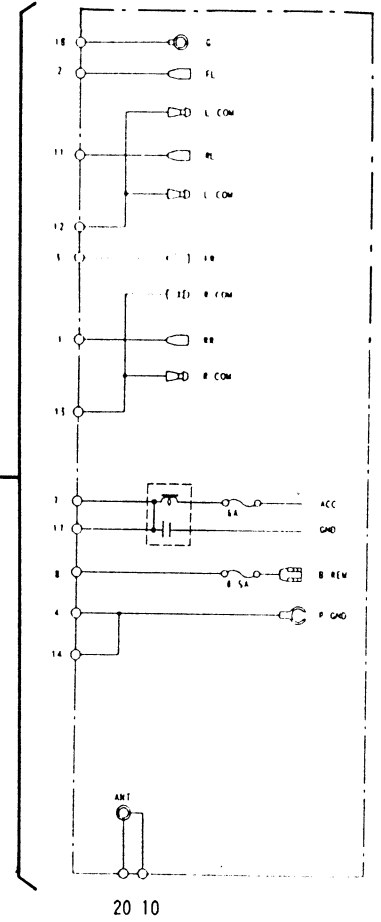
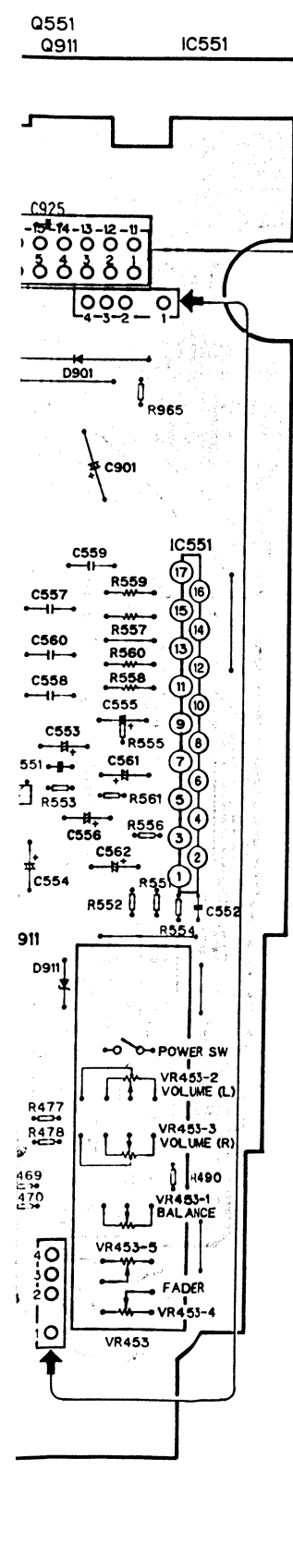
D



## TUNER AMP P.C.BOARD

IC, Q	Q251	Q151	Q152	Q153	IC1	Q2	Q952	Q3	Q502	Q452	Q503	Q202	Q201	Q912	Q913	Q551	IC551
ADJ	IC251	IC951	VR151	VR152	T51	L5	T1	L4	L3	T206	T205	T203	Q456	Q455	Q522	Q911	

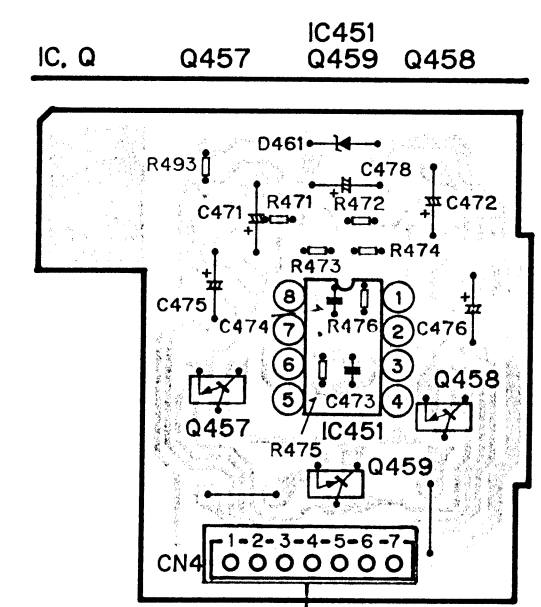




IC1

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.1V	41	1 : 3V
6	5.2V	44	2.4V/0V
8	2.9V	46	3.3V/0V
11 - 13	4.8V	47	4V/5.2V
14	2.8V	51	0.2V
16, 17	2.3V	52	0V/6.9V
18	4.7V	53	4.9V/0V
20 - 22	3.1V	54	11.7V
23	3.1V	55	0V/2.2V
24, 25	3.5V	56	0V/4.3V
26	4.8V	58	3.4V/0V
28	0V/4.1V	59 - 62	8.6V/0V
29	0V/3.5V		
31	0V/6.4V		
32	3.4V		

VOLUME P.C.BOARD



KEY BOARD UNIT

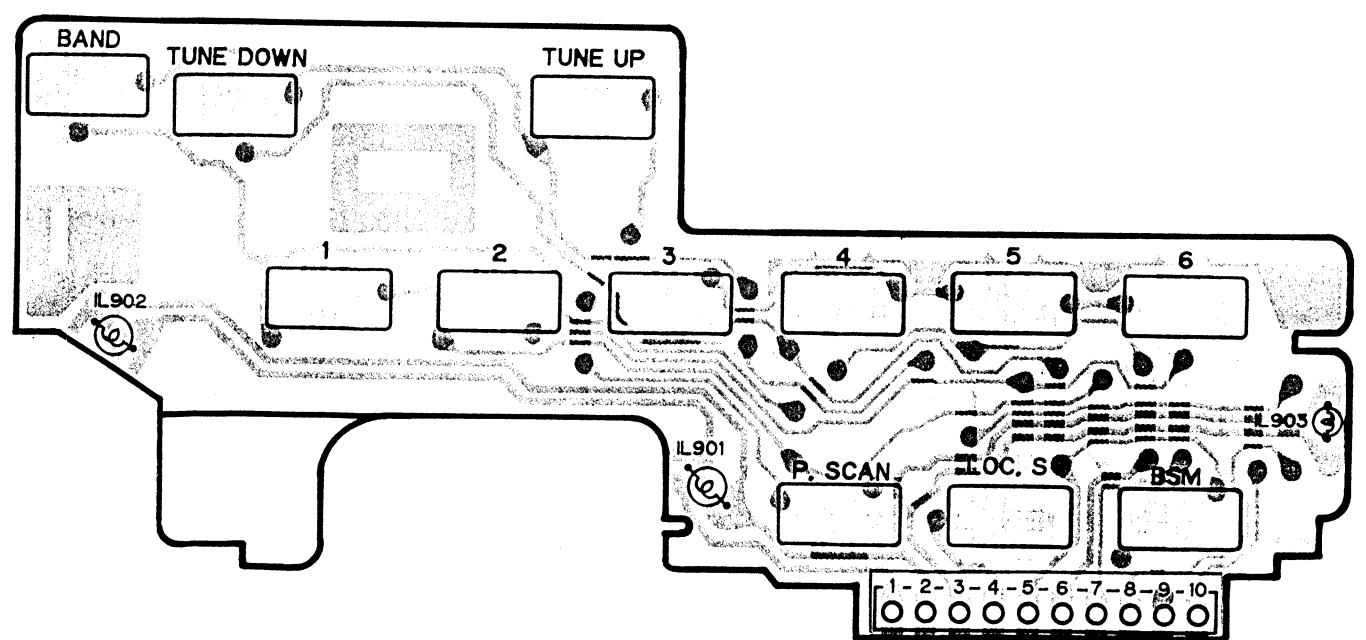
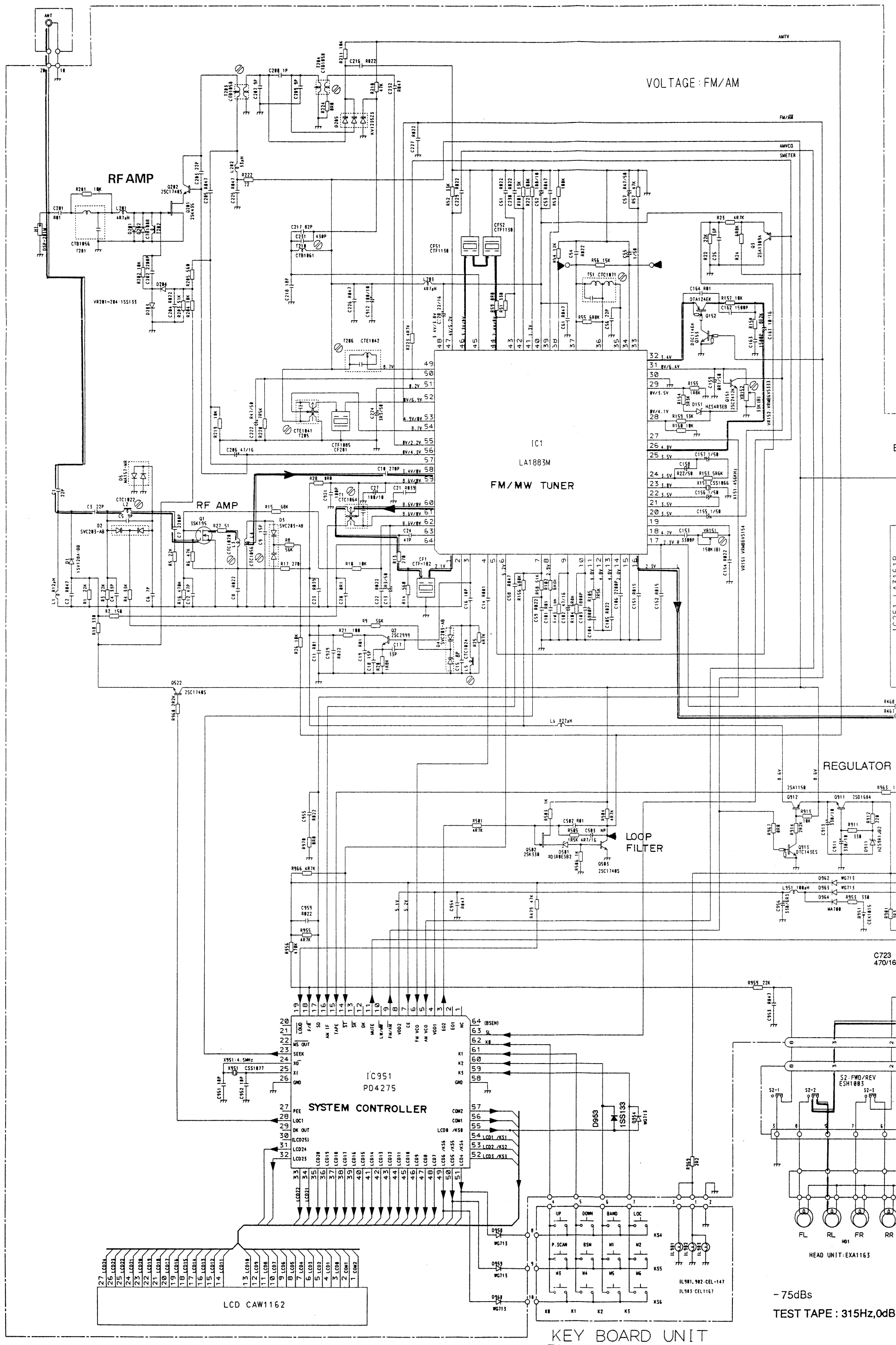


Fig. 17



## 17. SCHEMATIC CIRCUIT DIAGRAM (KEH-2400B)



NOTE  
□ Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.  
—|— Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:  
2.2→2R2  
0.022→R022

TUNER AMP UNIT  
Consists of  
● TUNER AMP P.C. BOARD  
● VOLUME P.C. BOARD

TUNER AMP P.C. BOARD

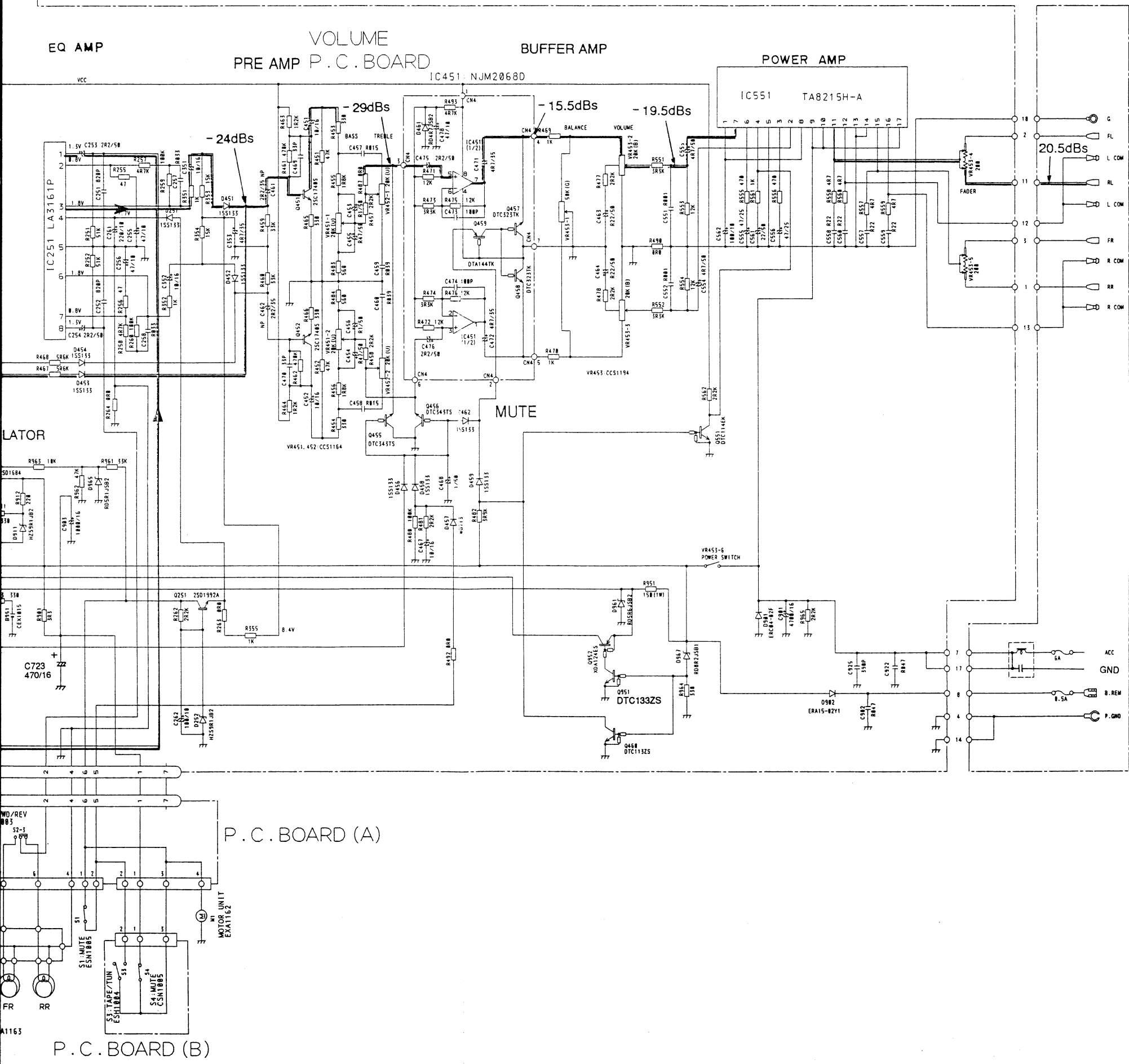
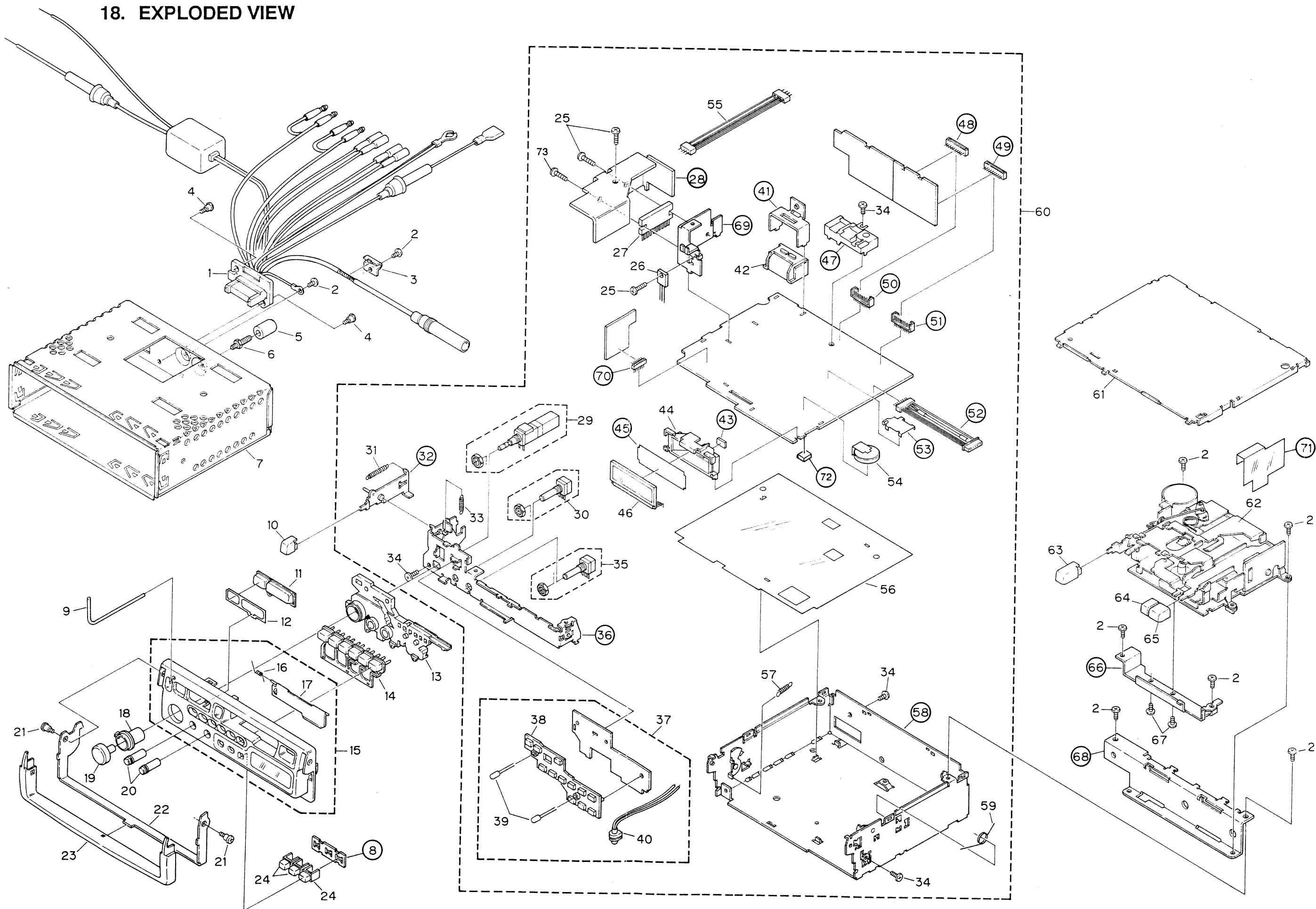


Fig. 18

# 18. EXPLODED VIEW



NOTE:  
 • The parts  
 subject to  
 • Because th  
 not spare p

## Parts List

Mark No. De

- 1 Co
- 2 Sc
- 3 Cl
- 4 Sc
- 5 Bu
- 6 Sc
- 7 Bo
- 8 Cu
- 9 Sh
- 10 Bu
- 11 Bu
- 12 Sp
- 13 Le
- 14 Bu
- 15 Gr
- 16 Sp
- 17 Do
- 18 Kn
- 19 Kn
- 20 Kn
- 21 Sc
- 22 Ha
- 23 Co
- 24 Bu
- 25 Sc
- 26 Tr
- 27 IC
- 28 He
- 29 Vo
- 30 Vo
- 31 Sp
- 32 Le
- 33 Sp
- 34 Sc
- 35 Vo
- 36 Ho
- 37 Ke

Fig. 19

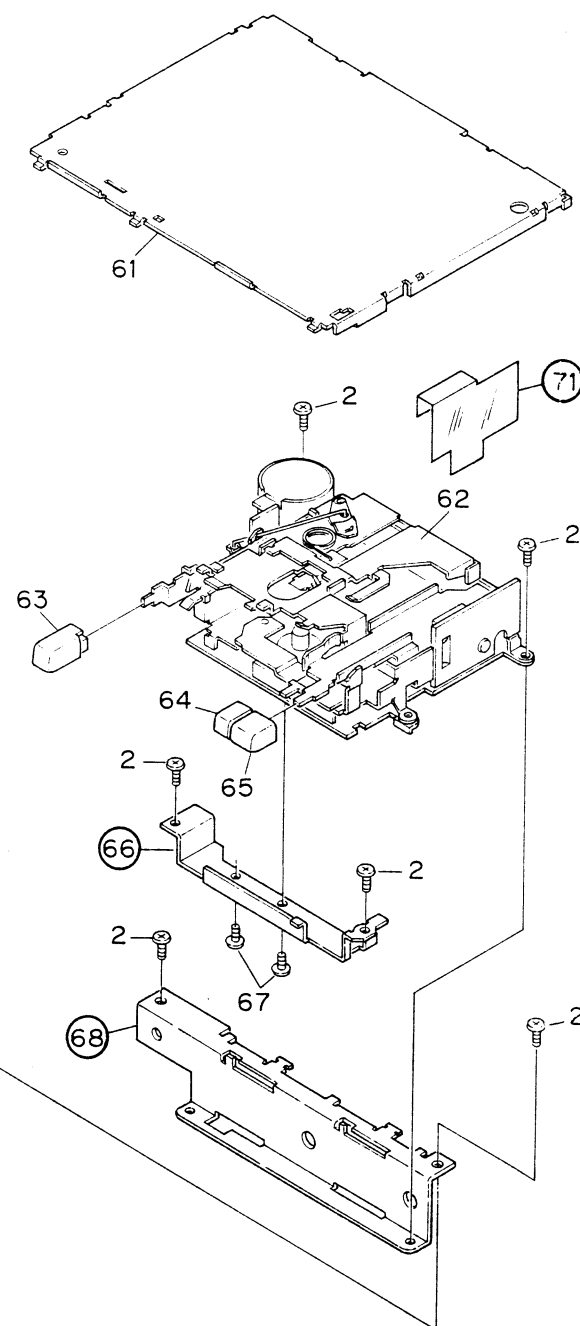
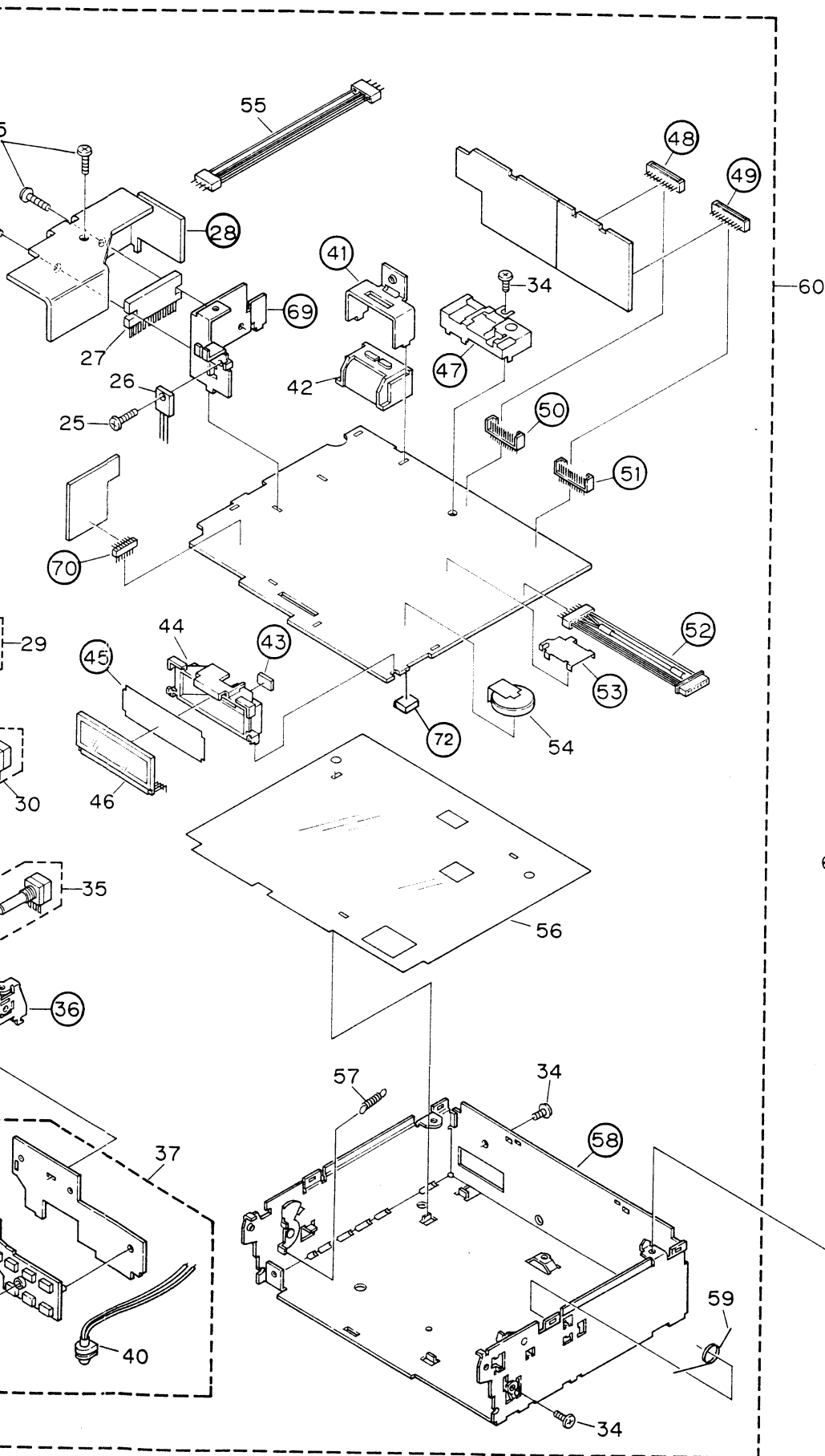


Fig. 19

NOTE:

- The parts marked with "●" may need long time to supply and their supply is subject to refuse as the case may be.
- Because the parts with encircled number shown on the dismantling drawing are not spare parts, we are unable to supply them in principle.

● Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	CDE3690	38	Switch	CNV2519
2	Screw	BSZ30P060FMC	39	Lamp(IL 901,902)	CEL1013
3	Clamper	CNC2982	40	Lamp(IL 903)	CEL1168
4	Screw	CBA1073	41	Holder	CNC3260
5	Bush	CNV1009	42	Connector	CKS1977
6	Screw	CBA1002	43	Spacer	CNM2914
7	Box	CNB1553	44	Holder	CNV2521
8	Cushion	CNM3180	45	Plate	CNM3285
9	Shaft	CLP1064	46	LCD	CAW1162
10	Button(QR EJECT)	CAC2548	47	Case	CNC3276
11	Button(BAND/TUNE)	CAC2544	48	Connector	CKS1997
12	Spacer	CNM3275	49	Connector	CKS1997
13	Lens	CNV3024	50	Plug	CKS1986
14	Button(1-6)	CAC2692	51	Plug	CKS1986
15	Grille Unit	CXA4457	52	Connector	CDE2884
16	Spring	CBH1397	53	Shield	CNC3275
17	Door	CAT1307	54	Battery(B 951)	CEX1015
18	Knob(FADER)	CAA1233	55	Connector	CDE3527
19	Knob(VOLUME)	CAA1234	56	Insulator	CNM3153
20	Knob(BASS/TREBLE)	CAA1235	57	Spring	CBH1447
21	Screw	CBA1165	58	Chassis Unit	CXA4524
22	Handle	CNC4007	59	Spring	CBH1366
23	Cover	CNV3022	● 60	Tuner Amp Assy	CWM2901
24	Button	CAC3097	61	Case	CNB1552
25	Screw	BSZ30P120FMC	● 62	Cassette Mechanism Assy	EXK1720
26	Transistor(Q 911)	2SD1684	63	Button(EJECT)	CAC2545
27	IC(IC 551)	TA8215H-A	64	Button(REW)	CAC2547
28	Heat Sink	CNC3896	65	Button(FF)	CAC2546
29	Volume(VOLUME, VR453)	CCS1193	66	Bracket	CNC3265
30	Volume(BASS, VR451)	CCS1164	67	Screw	BSZ26P060FMC
31	Spring	CBH1448	68	Bracket	CNC3264
32	Lever Unit	CXA4523	69	Holder	CNC3897
33	Spring	CBH-846	70	Plug	CKS1616
34	Screw	BSZ30P055FUC	71	Insulator	CNM3036
35	Volume(TREBLE, VR452)	CCS1164	72	Spacer	CNN-625
36	Holder Unit	CXA3709	73	Screw	BSZ30P100FMC
● 37	Key Board Unit	CWM2929			

- The KEH-3430B/EW, KEH-2400SDK/WG, KEH-2430B/EW and KEH-2400B/EW Parts Lists enumerate the parts which differ from those enumerated in the KEH-3400SDK/WG Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-3400SDK/WG Parts List is given on page 56.

Mark No. Description	KEH-3400SDK/WG	KEH-3430B/EW	KEH-2400SDK/WG	KEH-2430B/EW	KEH-2400B/EW
	Part No.	Part No.	Part No.	Part No.	Part No.
1 Cord Assy	CDE3690	CDE3435	CDE3690	CDE3435	CDE3690
14 Button(1-6)	CAC2692	CAC2692	CAC2670	CAC2670	CAC2670
15 Grille Unit	CXA4457	CXA4455	CXA4463	CXA4461	CXA4462
29 Volume(VOLUME, VR453	CCS1193	CCS1193	CCS1194	CCS1194	CCS1194
③ 37 Key Board Unit	CWM2929	CWM2929	CWM2929	CWM2929	CWM2931
39 Lamp(IL 901, 902)	CEL1013	CEL1013	CEL1013	CEL1013	CEL-147
40 Lamp(IL 903)	CEL1168	CEL1168	CEL1168	CEL1168	CEL1167
48 Connector	CKS1997	.....	CKS1997	.....	.....
49 Connector	CKS1997	CKS1997	.....	.....	.....
50 Plug	CKS1986	.....	CKS1986	.....	.....
51 Plug	CKS1986	CKS1986	.....	.....	.....
52 Connector	CDE2884	CDE2884	CDE3064	CDE3064	CDE3064
58 Chassis Unit	CXA4524	CXA4426	CXA4557	CXA4526	CXA4426
③ 60 Tuner Amp Assy	CWM2901	CWM2899	CWM2907	CWM2905	CWM2906
③ 62 Cassette Mechanism Assy	EXK1720	EXK1720	EXA1710	EXK1710	EXK1710

## 19. CASSETTE MECHANISM ASSY EXPLODED VIEW (KEH-3400SDK, KEH-3430B)

### ● Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Reel Unit	EXA1204	41	Spring	EBH1363
2	Gear Unit	EXA1200	42	Motor Unit	EXA1162
3	Washer	CBF1037	43	Screw	PMS26P025FUC
4	Gear	ENV1230	44	Screw	CBA1054
5	Gear	ENV1203	45	Gathering P.C. Board	ENX1005
6	Gear	ENV1204	46	Switch	ESH1004
7	Gear	ENV1273	47	Switch	CSN1005
8	Gear	ENV1211	48	Screw	CBA1025
9	Sub Chassis Unit	EXA1197	49	Gear	ENV1229
10	Arm	ENV1210	50	Washer	CBF1038
11	Screw	BMZ20P025FMC	51	Belt	ENT1020
12	Spring	EBH1366	52	Gear	ENV1209
13	.....		53	Arm Unit	EXA1155
14	.....		54	Washer	YE30FUC
15	Shaft	ELA1266	55	Spring	EBH1310
16	Lever	ENC1269	56	Flywheel Unit	EXA1161
17	Washer	EBF1015	57	Belt	ENT1018
18	Gear	ENV1208	58	Arm	ENV1206
19	Spring	EBH1361	59	Spring	EBH1317
20	Spring	EBH1362	60	Gear	ENV1205
21	Lever	ENC1255	61	Chassis Unit	EXA1196
22	Spring	EBH1359	62	Screw	JFZ20P025FNI
23	Washer	YE25FUC	63	Bracket	ENC1250
24	Spring	EBH1358	64	Pulley	ENV1207
25	.....		65	Solenoid	EXP1010
26	Lever	ENC1256	66	Screw	EBA1023
27	Spring	EBH1373	67	Plug	CKS1055
28	Arm	ENC1248	68	Gathering P.C. Board	ENX1004
29	Spring	EBH1308	69	Switch	ESH1003
30	Washer	YE15FUC	70	Washer	WH23FMC
31	Arm Unit	EXA1198	71	Screw	BSZ23P040FMC
32	Spring	EBH1374	72	Screw	CBA1015
33	Frame	ENC1204	73	Head Unit	EXA1163
34	Arm	ENC1263	74	P.C. Board	ENP1042
35	.....		75	Switch	ESN1005
36	Holder	ENC1257	76	Washer	YE20FUC
37	Spring	EBH1364	77	Pinch Roller Unit	EXA1194
38	Lever	ENV1222	78	Washer	YE12FUC
39	Head Base Unit	EXA1203	79	Roller	ELA1247
40	Tube		80	Arm Unit	EXA1166

Mark No.	Description	Part No.
81	Screw	CBA1038
82	Arm	ENV1227
83	Spring	EBH1368
84	Arm	ENC1266
85	Spring	EBH1322
86	Lever	ENC1228
87	Spring	EBH1365
88	Lever	ENC1229
89	Arm Unit	EXA1158
90	Pinch Roller Unit	EXA1193
91	Spring	EBH1375
92	Arm Unit	EXA1157
93	Spring	EBH1345
94	Collar	ELA1267

## ● Cassette Mechanism Assy

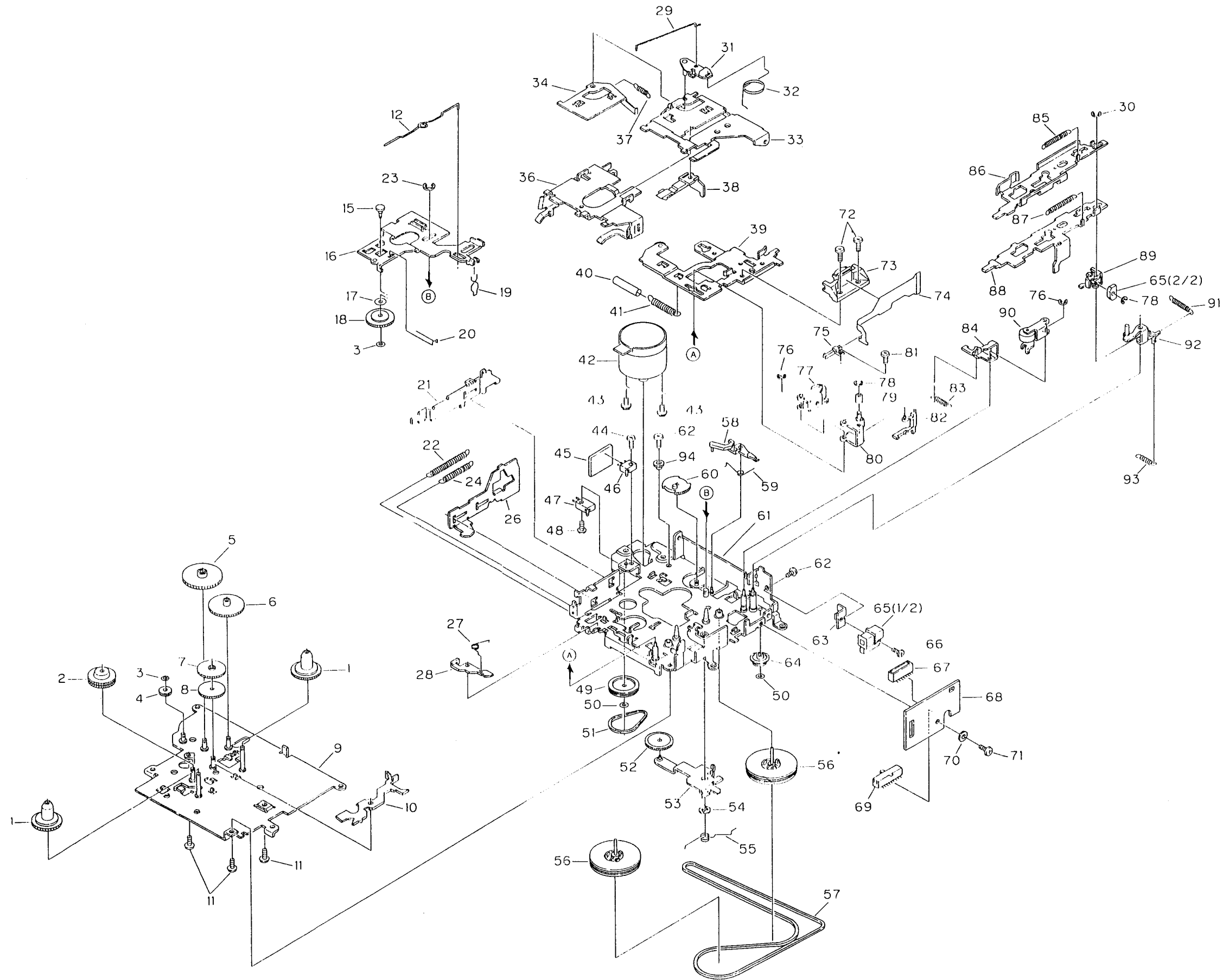


Fig. 20



## 20. CASSETTE MECHANISM ASSY EXPLODED VIEW (KEH-2400SDK, KEH-2430B, KEH-2400B)

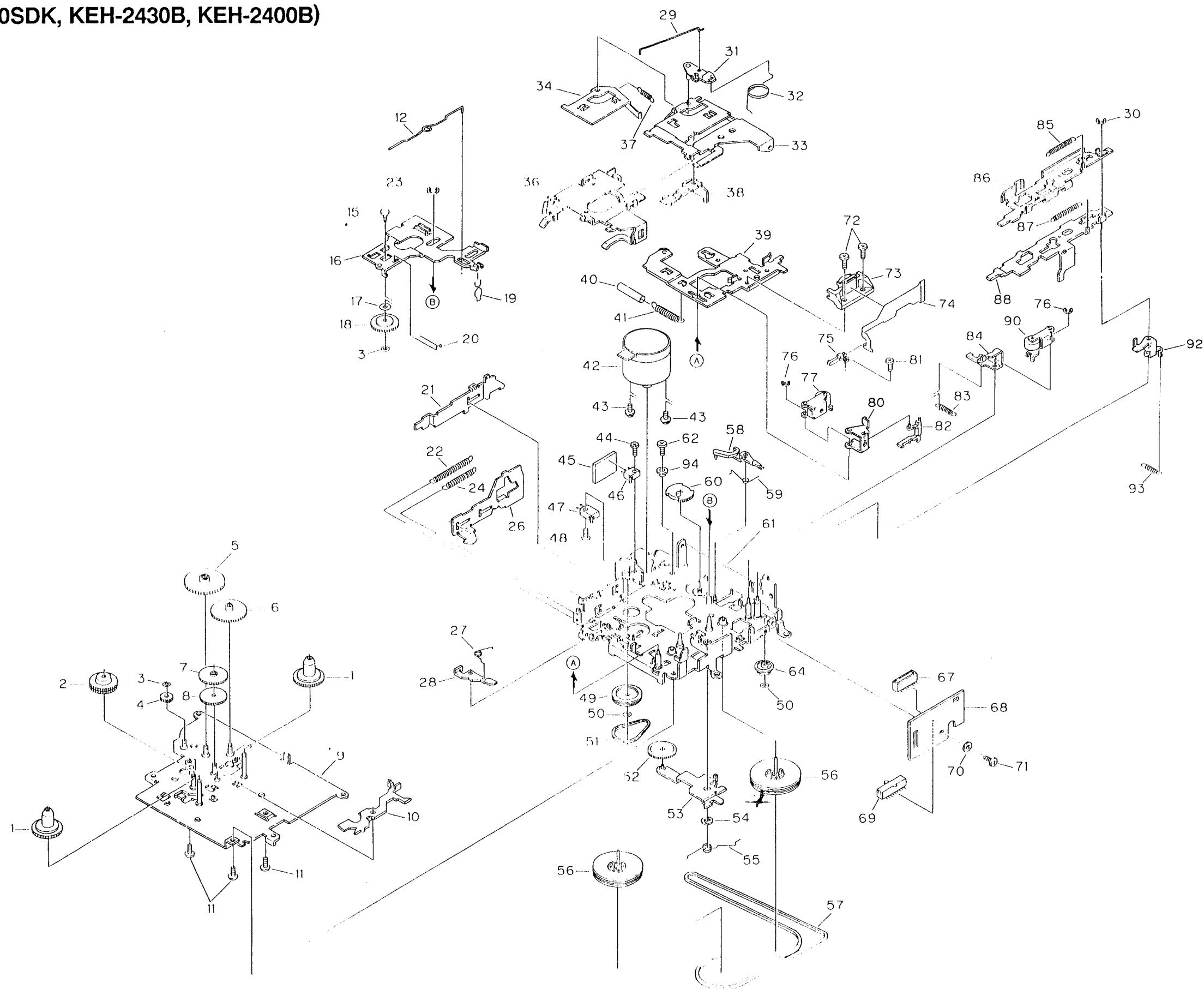


Fig. 21

● Parts List

	Mark No.	Description	Part No.	Mark No.	Description	Part No.
A		1 Reel Unit	EXA1104	41 Spring	EBH1363	
		2 Gear Unit	EXA1200	42 Motor Unit	EXA1162	
		3 Washer	CBF1037	43 Screw	PMS26P025FUC	
		4 Gear	ENV1230	44 Screw	CBA1054	
		5 Gear	ENV1203	45 Gathering P.C. Board	ENX1005	
		6 Gear	ENV1204	46 Switch	ESH1004	
		7 Gear	ENV1273	47 Switch	CSN1005	
		8 Gear	ENV1211	48 Screw	CBA1025	
		9 Sub Chassis Unit	EXA1197	49 Gear	ENV1229	
		10 Arm	ENV1210	50 Washer	CBF1038	
B		11 Screw	BMZ20P025FMC	51 Belt	ENT1020	
		12 Spring	EBH1366	52 Gear	ENV1209	
		13 .....		53 Arm Unit	EXA1155	
		14 .....		54 Washer	YE30FUC	
		15 Shaft	ELA1266	55 Spring	EBH1310	
		16 Lever	ENC1269	56 Flywheel Unit	EXA1161	
		17 Washer	EBF1015	57 Belt	ENT1018	
		18 Gear	ENV1208	58 Arm	ENV1206	
		19 Spring	EBH1361	59 Spring	EBH1317	
		20 Spring	EBH1362	60 Gear	ENV1205	
C		21 Lever	ENC1255	61 Chassis Unit	EXA1196	
		22 Spring	EBH1359	62 Screw	JFZ20P025FNI	
		23 Washer	YE25FUC	63 .....		
		24 Spring	EBH1358	64 Pulley	ENV1207	
		25 .....		65 .....		
		26 Lever	ENC1256	66 .....		
		27 Spring	EBH1373	67 Plug	CKS1055	
		28 Arm	ENC1248	68 Gathering P.C. Board	ENX1004	
		29 Spring	EBH1308	69 Switch	ESH1003	
		30 Washer	YE15FUC	70 Washer	WH23FMC	
D		31 Arm Unit	EXA1198	71 Screw	BSZ23P040FMC	
		32 Spring	EBH1374	72 Screw	CBA1015	
		33 Frame	ENC1204	73 Head Unit	EXA1163	
		34 Arm	ENC1263	74 P.C. Board	ENP1042	
		35 .....		75 Switch	ESN1005	
		36 Holder	ENC1257	76 Washer	YE20FUC	
		37 Spring	EBH1364	77 Pinch Roller Unit	EXA1194	
		38 Lever	ENV1222	78 .....		
		39 Head Base Unit	EXA1203	79 .....		
		40 Tube		80 Arm	ENC1213	

Mark No.	Description	Part No.
81	Screw	CBA1038
82	Arm	ENV1227
83	Spring	EBH1368
84	Arm	ENC1266
85	Spring	EBH1365
86	Lever	ENC1206
87	Spring	EBH1365
88	Lever	ENC1207
89	.....	
90	Pinch Roller Unit	EXA1193
91	.....	
92	Arm	ENC1264
93	Spring	EBH1367
94	Collar	ELA1267

## 21. PACKING METHOD

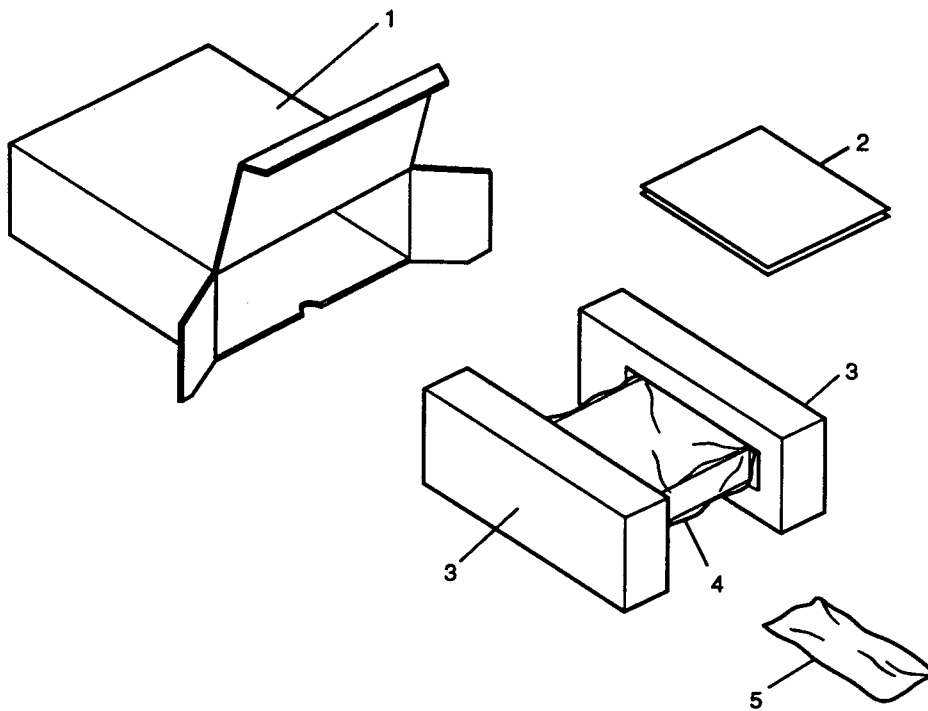


Fig. 22

### ● Parts List

\*:Non spare part

Mark No.	Description	KEH-3400SDK/WG	KEH-3430B/EW	KEH-2400SDK/WG	KEH-2430B/EW	KEH-2400B/EW
		Part No.	Part No.	Part No.	Part No.	Part No.
1	Carton	CHG2104	CHG2106	CHG2105	CHG2107	CHG2109
2-1	Owner's Manual	CRD1531	CRD1532	CRD1531	CRD1532	CRD1533
* 2-2	Card	CRY-062	CRY-062	CRY-062	CRY-062	CRY-062
* 2-3	Caution Card	CRN1007	.....	CRN1007	.....	.....
* 2-4	Passport	CRY1013	.....	CRY1013	.....	.....
3	Styrofoam	CHP1413	CHP1413	CHP1413	CHP1413	CHP1413
4	Cover	CEG1113	CEG1113	CEG1113	CEG1113	CEG1113
5	Accessory Assy	CEA1584	CEA1584	CEA1584	CEA1584	CEA1584

5 Accessory Assy CEA1584		
Mark No.	Description	Part No.
5-1	Screw(×1)	CBA-102
5-2	Screw(×1)	CBA1002
5-3	Strap	CNF-111
5-4	Bush	CNV1009
5-5	Nut(×2)	NF50FMC
5-6	Shaft	CLP1064
* 5-7	Polyethylene Bag	CEG1011

### 2-1 Owner's Manual

Part No.	Model	Language
CRD1531	KEH-3400SDK/WG KEH-2400SDK/WG	German, French
CRD1532	KEH-3430B/EW KEH-2430B/EW	English, French, German, Norwegian, Dutch, Spanish, Finnish, Swedish, Portuguese
CRD1533	KEH-2400B/EW	English, Spanish, Italian, Finnish, Swedish, Portuguese

## 22. ELECTRICAL PARTS LIST

### NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S□□□□J, RS1/10S□□□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :  
Unit Name : Tuner Amp P.C.Board(KEH-3400SDK)

### MISCELLANEOUS

-----	Circuit Symbol	& No.	Part Name	-----	Part No.
IC 1			LA1883M		
IC 251			LA3161P		
IC 551			TA8215H-A		
IC 951			PD4275		
Q 1			3SK195		
Q 2			2SC2999		
Q 3			2SA1309A		
Q 151			2SC2412K		
Q 152			DTA124EK		
Q 153			DTC114EK		
Q 201			2SK435		
Q 202			2SC1740S		
Q 251			2SD1992A		
Q 402			XDC124ES		
Q 451 452 453 454			2SC1740S		
Q 455 456			DTC343TS		
Q 460			DTC113ZS		
Q 502			2SK330		
Q 503 522			2SC1740S		
Q 551			DTC114EK		
Q 707			2SC2412K		
Q 911			2SD1684		
Q 912			2SA1150		
Q 913			DTC143ES		
Q 951			XDC114ES		
Q 952			XDA124ES		
D 1			1SV128A-BB		
D 2 3 4		Variable Capacitance Diode	SVC203-AB		
D 5			MA157-MR		
D 151			HZS4R3EB3		
D 201 202 203 204			1SS133		
D 205		Variable Capacitance Diode	KV1235Z3		
D 251			1SS133		
D 252 911			HZS9R1JB2		
D 451 452 453 454 456 458 459 462 969			1SS133		
D 460			MA700		
D 501			RD3R0ESB2		
D 702			WG713		
D 901			ERC04-02F		
D 902			ERA15-02Y1		

-----	Circuit Symbol		& No.	Part Name				-----	Part No.
D 951	956	957	958	959	960	962	963	966	WG713
D 961									RD5R6JSB2
D 964									MA700
D 965									RD5R1JSB2
D 967									RD8R2JSB1
L 1						Inductor			CTF1065
L 2						Coil			CTC1022
L 3						Coil			CTC1020
L 4						Coil			CTC1056
L 5						OSC Coil			CTC1024
L 6						Inductor			LAUR22M
L 201						Ferr-Inductor			LAU4R7K
L 202						Ferr-Inductor			LAU330K
L 203						Ferr-Inductor			CTF-161
L 701						Micro-Inductor			LAUR68M
L 951						Ferr-Inductor			LAU101K
T 1						Coil			CTC1064
T 51						Coil			CTC1071
T 201						Coil			CTB1056
T 202						Coil			CTB1008
T 203 204						Coil			CTB1058
T 205						Coil			CTE1041
T 206						Coil			CTE1042
T 210						Coil			CTB1061
CF 1						Ceramic Filter			CTF-182
CF 51 52						Ceramic Filter			CTF1130
CF201						Filter			CTF1085
H 1						Surge Protector			DSP-201M
X 151						Ceramic Resonator			CSS1066
X 951						Crystal Resonator			CSS1077
VR151						Semi-fixed 150kΩ(B)			VRMB6VS154
VR152						Semi-fixed 33kΩ(B)			VRMB6VS333
VR451 452						Volume 20kΩ(U)			CCS1164
VR453						20kΩ(B), 50kΩ(G), 200Ω			CCS1193
B 951						Battery			CEX1015
						LCD			CAW1162

### RESISTORS

-----	Circuit Symbol	& No.	Part Name	-----	Part No.
R 1	3	5	22		RS1/10S223J
R 2					RD1/4PS151JL
R 4	159				RS1/10S333J
R 6					RD1/4PS473JL
R 8					RS1/10S563J

-----	Circuit Symbol & No.	Part Name	-----	Part No.	-----	Circuit Symbol & No.	Part Name	-----	Part No.
R	9			RD1/4PS563JL	R	480			RD1/4PS104JL
R	10	157 160		RS1/10S103J	R	481	485		RD1/4PS102JL
R	13			RD1/4PS271JL	R	482			RD1/4PS392JL
R	14			RS1/10S561J	R	483	484		RS1/10S561J
R	15			RS1/10S683J	R	487			RS1/10S0R0J
R	16			RS1/10S474J	R	489			RS1/10S563J
R	17			RS1/8S271J	R	490			RS1/10S2R2J
R	18	51		RS1/10S331J	R	491			RS1/10S273J
R	20	155		RS1/10S182J	R	492			RS1/8S0R0J
R	21			RS1/10S101J	R	501	955 966		RD1/4PS472JL
R	23			RD1/4PS472JL	R	503	506		RD1/4PS102JL
R	24			RD1/4PS682JL	R	504			RS1/10S472J
R	25			RS1/10S472J	R	505			RD1/4PS152JL
R	26			RD1/4PS103JL	R	551	552		RS1/10S332J
R	27			RS1/10S510J	R	553	554		RS1/10S123J
R	28	59		RS1/10S0R0J	R	555	556		RS1/10S391J
R	52			RD1/4PS333JL	R	557	558 559 560		RD1/4PS2R2JL
R	53			RD1/4PS104JL	R	561			RS1/10S102J
R	54			RD1/4PS123JL	R	562			RD1/4PS222JL
R	55	102 104		RS1/10S682J	R	732			RD1/4PS223JL
R	56			RD1/4PS153JL	R	734			RS1/8S271J
R	57			RS1/10S473J	R	735	736		RS1/10S102J
R	58			RS1/10S513J	R	737			RS1/8S473J
R	101			RS1/10S133J	R	738			RS1/8S103J
R	103			RS1/10S183J	R	739			RS1/10S104J
R	105			RS1/10S752J	R	740			RS1/8S0R0J
R	153			RD1/4PS562JL	R	901			RD1/2PS3R3JL
R	154			RS1/10S332J	R	911	964		RD1/4PS331JL
R	156			RS1/10S684J	R	912			RD1/4PS221JL
R	158			RS1/10S822J	R	913	967		RS1/10S103J
R	201	202 211		RS1/10S103J	R	914	965		RS1/10S222J
R	203			RD1/4PS513JL	R	951			RS1P151JL
R	204	219		RD1/4PS103JL	R	953			RS1/10S331J
R	205			RS1/10S561J	R	956			RD1/4PS474JL
R	210			RS1/10S473J	R	959			RS1/10S223J
R	220			RD1/4PS752JL	R	960			RD1/4PS222JL
R	221			RS1/10S104J	R	961			RD1/4PS333JL
R	222			RD1/4PS220JL	R	962			RD1/4PS473JL
R	223			RS1/10S472J	R	963			RD1/4PS103JL
R	224			RS1/10S0R0J	R	969			RS1/10S2R2J
R	251	252		RS1/10S513J	R	970			RS1/8S0R0J
R	255	256		RS1/10S470J	CAPACITORS				
R	257	258		RS1/10S472J	-----	Circuit Symbol & No.	Part Name	-----	Part No.
R	259	260		RS1/10S104J	C	1	3 56		CCSQCH220J50
R	262			RS1/10S222J	C	2	53 58		CKSQYF473Z50
R	263			RS1/8S0R0J	C	4	25		CCSQCH330J50
R	264			RS1/10S0R0J	C	5			CCSQTH090D50
R	405			RD1/4PS103JL	C	6			CCSQTH070D50
R	407			RS1/10S0R0J	C	7			CKSQYB222K50
R	451	452 479		RS1/10S473J	C	8	22 51 54 59 105 154		CKSQYB223K50
R	453	454 465 466		RS1/10S331J	C	9			CCSQTH150J50
R	455			RD1/4PS182JL	C	10			CCSQSL271J50
R	456			RS1/10S182J	C	11	19 101 164		CKSQYB103K50
R	457			RD1/4PS222JL	C	12	24		CCSQCH470J50
R	458	477 478		RS1/10S222J	C	13			CEA3R3M50LS
R	459	460		RS1/10S333J	C	14	165		CKSQYB102K50
R	461	462		RS1/10S474J	C	15			CCSQCH080D50
R	463	464		RS1/8S132J	C	16			CCSQCH100D50
R	467	468		RD1/4PS562JL	C	17			CCSQCH330J50
R	469	470		RS1/10S271J					

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C 18				CCSQCH150J50
C 20				CKSQYF104Z25
C 21				CKSYB393K25
C 23				CKSYB393K25
C 27	52			CEA101M10LS
C 55				CEA010M50LS2
C 57				CEAR47M50LS2
C 61				CKSYB473K50
C 102				CEA470M16LS
C 103				CKSQYB182K50
C 104				CKSQYB682K50
C 106				CKSQYB222K50
C 151	152			CKSQYB153K50
C 153				CKSQYB332K50
C 155	156 157			CEA010M50LS2
C 158				CEAR22M50LS2
C 159				CEA0R1M50LS2
C 161				CEA100M16LS2
C 162	163			CKSQYB152K50
C 201				CKSQYB103K50
C 202				CKSQYB222K50
C 203				CCSQCH220J50
C 204	216 227 229 230			CKSQYB223K50
C 205	226			CKSQYF473Z50
C 206				CEA470M16LS
C 207	209			CCSQTH090D50
C 208				CCSQCH010C50
C 217				CCSORH820J50
C 218				CCSQUJ180J50
C 222				CEAR47M50LS2
C 224				CEA3R3M50LS
C 225	232			CKSQYB473K25
C 228				CEA220M16LS
C 231				CQPA431G2A
C 251	252			CKSQYB821K50
C 253	254			CEA2R2M50LS2
C 255				CEA470M10LS
C 256				CEHAQ470M25
C 257	258			CKSQYB333K50
C 261				CEA221M10L2
C 262				CEHAQ101M10
C 451	452 467 477			CEA100M16LS2
C 453	454			CEA0R1M50LS2
C 455	456			CEAR47M50LS2
C 457	458			CKSQYB153K50
C 459	460			CKSYB393K25
C 461	462			CEALNP2R2M35
C 463	464			CEAR22M50LS2
C 468				CEA0R1M50LS2
C 469	470			CCSQCH330J50
C 502				CKSQYB103K50
C 503	4.7 $\mu$ F/16V			CCH1005
C 551	552			CKSQYB102K50
C 553	554			CEHAQ4R7M50
C 555	556			CEHAQ470M25
C 557	558 559 560			CFTNA224J50
C 561				CEHAQ220M50
C 562				CEHAQ101M10
C 723				CEA471M16L2
C 725				CCSQCH330J50

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C 901				CEHAQ472M16
C 902				CKSQYF473Z50
C 903				CEA331M16L2
C 911	913	330 $\mu$ F/10V		CCH1128
C 912				CEA101M10LS
C 921				CCSQCH101J50
C 922				CKSYF473Z50
C 923	924 926 927			CCSQCH101J50
C 925				CCSQCH391J50
C 929				CKSQYB223K50
C 951	952			CCSQCH100D50
C 954				CKSYB473K50
C 955				CKDYF223Z50
C 956				CEA331M6R3L2
C 957				CEA2R2M50LS2
C 958				CEA220M16LS
C 959				CKSYB223K50
C 960				CKSQYF473Z50
C 961				CKDYB472K50

Unit Number :

Unit Name : Tuner Amp P.C.Board(KEH-3430B)

## MISCELLANEOUS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
IC 1				LA1883M
IC 251				LA3161P
IC 551				TA8215H-A
IC 951				PD4275
Q 1				3SK195
Q 2				2SC2999
Q 3				2SA1309A
Q 151				2SC2412K
Q 152				DTA124EK
Q 153				DTC114EK
Q 201				2SK435
Q 202	203 204 205 206 207			2SC1740S
Q 251				2SD1992A
Q 402				XDC124ES
Q 451	452 453 454			2SC1740S
Q 455	456			DTC343TS
Q 460				DTC113ZS
Q 502				2SK330
Q 503	522			2SC1740S
Q 504				DTC143ES
Q 505				DTC124ES
Q 551				DTC114EK
Q 911				2SD1684
Q 912				2SA1150
Q 913				DTC143ES
Q 951				DTC113ZS
Q 952				XDA124ES
D 1				1SV128A-BB
D 2	3 4	Variable Capacitance Diode		SVC203-AB
D 5				MA157-MR
D 151				HZS4R3EB3
D 201	202 203 204			1SS133
D 205		Variable Capacitance Diode		KV1235Z3
D 251				1SS133
D 252	911			HZS9R1JB2

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-----	Circuit Symbol	& No.	Part Name	-----	Part No.	-----	Circuit Symbol	& No.	Part Name	-----	Part No.
R 490					RS1/10S0R0J	C 104					CKSQYB682K50
R 491					RS1/10S273J	C 106					CKSQYB222K50
R 492					RS1/8S0R0J	C 151	152				CKSQYB153K50
R 501 502					RD1/4PS222JL	C 153					CKSQYB332K50
R 503 506					RD1/4PS102JL	C 155	156 157				CEA010M50LS2
R 504					RS1/10S472J	C 158					CEAR22M50LS2
R 505					RD1/4PS152JL	C 159					CEA0R1M50LS2
R 507					RD1/4PS331JL	C 161					CEA100M16LS2
R 551 552					RS1/10S332J	C 162	163				CKSQYB152K50
R 553 554					RS1/10S123J	C 201					CKSQYB103K50
R 555 556					RS1/10S471J	C 202					CKSQYB222K50
R 557 558 559 560					RD1/4PS4R7JL	C 203					CCSQCH220J50
R 561					RS1/10S102J	C 204	217 227 229 230				CKSQYB223K50
R 562					RD1/4PS222JL	C 205	226				CKSQYF473Z50
R 901					RD1/2PS3R3JL	C 206					CEA470M16LS
R 911 964					RD1/4PS331JL	C 207	209				CCSQTH090D50
R 912					RD1/4PS221JL	C 208					CCSQCH010C50
R 913					RS1/10S103J	C 210	211 220 221				CKSQYF473Z50
R 914 965					RS1/10S222J	C 212					CCSQRH101J50
R 951					RS1P151JL	C 213					CCSQCH180J50
R 953					RS1/10S331J	C 214					COPA331G2A
R 955 966					RD1/4PS472JL	C 215					CCSQRH820J50
R 956					RD1/4PS474JL	C 216					CKSQYB103K50
R 959					RS1/10S223J	C 218					CCSQUJ150J50
R 960					RD1/4PS222JL	C 219					CCSQUJ470J50
R 961					RD1/4PS333JL	C 222					CEAR47M50LS2
R 962					RD1/4PS473JL	C 224					CEA3R3M50LS
R 963					RD1/4PS103JL	C 225	232				CKSQYB473K25
R 967					RS1/10S0R0J	C 228					CEA220M16LS
R 969					RS1/10S2R2J	C 251	252				CKSQYB821K50
R 970					RS1/8S0R0J	C 253	254				CEA2R2M50LS2
CAPACITORS						C 255					CEA470M10LS
						C 256					CEA470M10L2
						C 257	258				CKSQYB333K50
						C 261					CEA221M10L2
C 1 3 56					CCSQCH220J50	C 262					CEA101M10L2
C 2 53 58					CKSQYF473Z50	C 451	452 467 477				CEA100M16LS2
C 4 25					CCSQCH330J50	C 453	454				CEA0R1M50LS2
C 5					CCSQTH090D50	C 455	456				CEAR47M50LS2
C 6					CCSQTH070D50	C 457	458				CKSQYB153K50
C 7					CKSQYB222K50	C 459	460				CKSYB393K25
C 8 22 51 54 59 105 154					CKSQYB223K50	C 461	462				CEALNP2R2M35
C 9					CCSQTH150J50	C 463	464				CEAR22M50L2
C 10					CCSQSL271J50	C 468					CEA010M50LS2
C 11 19 101 164					CKSQYB103K50	C 469	470				CCSQCH330J50
C 12 24					CCSQCH470J50	C 501					CEAR47M50LS2
C 13					CEA3R3M50LS	C 502					CKSQYB103K50
C 14					CKSQYB102K50	C 503			4.7 $\mu$ F/16V		CCH1005
C 15					CCSQCH080D50	C 551	552				CKSQYB102K50
C 16					CCSQCH100D50	C 553	554				CEHAQ4R7M50
C 17					CCSQCH330J50	C 555	556				CEHAQ470M25
C 18					CCSQCH150J50	C 557	558 559 560				CFTNA224J50
C 20					CKSQYF104Z25	C 561					CEHAQ220M50
C 21					CKSYB393K25	C 562					CEHAQ101M10
C 23					CKSYB393K25	C 901					CEHAQ472M16
C 27 52					CEA101M10LS	C 902					CKSQYF473Z50
C 55					CEA010M50LS2	C 903					CEA102M16L2
C 57					CEAR47M50LS2	C 911	913		330 $\mu$ F/10V		CCH1128
C 61					CKSYB473K50	C 912					CEA101M10LS
C 102					CEA470M16LS	C 921					CCQCH101J50
C 103					CKSQYB182K50						

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-----	Circuit Symbol	& No.	Part Name	-----	Part No.	-----	Circuit Symbol	& No.	Part Name	-----	Part No.
R 105					RS1/10S752J	R 956					RD1/4PS474JL
R 153					RD1/4PS562JL	R 959					RS1/10S223J
R 154					RS1/10S332J	R 960					RD1/4PS222JL
R 156					RS1/10S684J	R 961					RD1/4PS333JL
R 158					RS1/10S822J	R 962					RD1/4PS473JL
R 201 202 211					RS1/10S103J	R 963					RD1/4PS103JL
R 203					RD1/4PS513JL	R 967					RS1/10S0R0J
R 204 219					RD1/4PS103JL	R 969					RS1/10S2R2J
R 205					RS1/10S561J	R 970					RS1/8S0R0J
R 210					RS1/10S473J	CAPACITORS					
R 220					RD1/4PS752JL	-----	Circuit Symbol	& No.	Part Name	-----	Part No.
R 221					RS1/10S104J	C 1	3	56			CCSQCH220J50
R 222					RD1/4PS220JL	C 2	53	58			CKSQYF473Z50
R 223					RS1/10S472J	C 4	25				CCSQCH330J50
R 224					RS1/10S0R0J	C 5					CCSQTH090D50
R 251 252					RS1/10S513J	C 6					CCSQTH070D50
R 255 256					RS1/10S470J	C 7					CKSQYB222K50
R 257 258					RS1/10S472J	C 8	22	51 54 59 105 154			CKSQYB223K50
R 259 260					RS1/10S104J	C 9					CCSQTH150J50
R 262					RS1/10S222J	C 10					CCSQL271J50
R 263					RS1/8S0R0J	C 11	19	101 164			CKSQYB103K50
R 264					RS1/10S0R0J	C 12	24				CCSQCH470J50
R 351 352 355					RD1/4PS102JL	C 13					CEA3R3M50LS
R 353 354					RD1/4PS153JL	C 14					CKSQYB102K50
R 451 452 479					RS1/10S473J	C 15					CCSQCH080D50
R 453 454 465 466					RS1/10S331J	C 16					CCSQCH100D50
R 455					RD1/4PS182JL	C 17					CCSQCH330J50
R 456					RS1/10S182J	C 18					CCSQCH150J50
R 457					RD1/4PS222JL	C 20					CKSQYF104Z25
R 458 477 478					RS1/10S222J	C 21					CKSYB393K25
R 459 460					RS1/10S333J	C 23					CKSYB393K25
R 461 462					RS1/10S474J	C 27	52				CEA101M10LS
R 463 464					RS1/8S122J	C 55					CEA010M50LS2
R 467 468					RD1/4PS103JL	C 57					CEAR47M50LS2
R 469 470					RS1/10S102J	C 61					CKSYB473K50
R 480					RD1/4PS104JL	C 102					CEA470M16LS
R 481					RD1/4PS222JL	C 103					CKSQYB182K50
R 482					RD1/4PS392JL	C 104					CKSQYB682K50
R 483 484					RS1/10S561J	C 106					CKSQYB222K50
R 487					RS1/10S0R0J	C 151	152				CKSQYB153K50
R 490					RS1/10S0R0J	C 153					CKSQYB332K50
R 492					RD1/4PS472JL	C 155	156 157				CEA010M50LS2
R 501					RD1/4PS102JL	C 158					CEAR22M50LS2
R 503 506					RS1/10S472J	C 159					CEA0R1M50LS2
R 504					RD1/4PS152JL	C 161					CEA100M16LS2
R 505					RS1/10S332J	C 162	163				CKSQYB152K50
R 551 552					RS1/10S123J	C 201					CKSQYB103K50
R 553 554					RS1/10S471J	C 202					CKSQYB222K50
R 555 556					RD1/4PS4R7JL	C 203					CCSQCH220J50
R 557 558 559 560					RS1/10S102J	C 204	227 229 230				CKSQYB223K50
R 561					RD1/4PS222JL	C 205	226				CKSQYF473Z50
R 562					RD1/2PS3R3JL	C 206					CEA470M16LS
R 901					RD1/4PS331JL	C 207	209				CCSQTH090D50
R 911 964					RD1/4PS221JL	C 208					CCSQCH010C50
R 912					RS1/10S103J	C 216					CKSQYB223K50
R 913					RS1/10S222J	C 217					CKSQRH820J50
R 914 965					RS1P151JL	C 218					CCSQW180J50
R 951					RS1/10S331J						
R 953					RD1/4PS472JL						
R 955 966											

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C	222			CEAR47M50LS2
C	224			CEA3R3M50LS
C	225 232			CKSQYB473K25
C	228			CEA220M16LS
C	231			CQPA431G2A
C	251 252			CKSQYB821K50
C	253 254			CEA2R2M50LS2
C	255			CEA470M10LS
C	256			CEA470M10L2
C	257 258			CKSQYB333K50
C	261			CEA221M10L2
C	262			CEA101M10L2
C	351 352			CEA100M16L2
C	353			CEA4R7M35L2
C	451 452 467			CEA100M16LS2
C	453 454			CEA0R1M50LS2
C	455 456			CEAR47M50LS2
C	457 458			CKSQYB153K50
C	459 460			CKSQYB393K25
C	461 462			CEALNP2R2M35
C	463 464			CEAR22M50L2
C	468			CEA010M50LS2
C	469 470			CCSQCH330J50
C	502			CKSQYB103K50
C	503	4.7 $\mu$ F/16V		CCH1005
C	551 552			CKSQYB102K50
C	553 554			CEHAQ4R7M50
C	555 556			CEHAQ470M25
C	557 558 559 560			CFTNA224J50
C	561			CEHAQ220M50
C	562			CEHAQ101M10
C	723	470 $\mu$ F/16V		CCH-114
C	901			CEHAQ472M16
C	902			CKSQYF473Z50
C	903			CEA102M16L2
C	911 913	330 $\mu$ F/10V		CCH1128
C	912			CEA101M10LS
C	921			CCQCH101J50
C	922			CKSYF473Z50
C	925			CCSQCH391J50
C	929			CKSQYB223K50
C	951 952			CCSQCH100D50
C	953			CKSQYF473Z50
C	954			CKSYB473K50
C	955			CKDYF223Z50
C	956			CEA331M6R3L2
C	959			CKSYB223K50

Unit Number :  
Unit Name : Volume P.C.Board

## MISCELLANEOUS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
IC	451			NJM2068D
Q	457 458			DTC323TK
Q	459			DTA144TK
D	461			RD4R7JSB2

## RESISTORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
R	471 472 475 476			RS1/10S123J
R	473 474			RS1/10S332J
R	493			RS1/10S472J

## CAPACITORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C	471 472			CEA4R7M35LS
C	473 474			CCSQCH101J50
C	475 476			CEA2R2M50LS2
C	478			CEA470M10L2
C	478 (KEH-3400SDK, KEH-2400SDK)			CEHAQ470M25

Unit Number :  
Unit Name : SDK P.C.Board(KEH-3400SDK,KEH-2400SDK/WG)

## MISCELLANEOUS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
IC	701			LA2220
IC	702			TA75558S
Q	701 702 705			2SC1740S
Q	703			2SK30A
Q	704			2SA1309A
Q	706			2SC2634NC
Q	708			XDC124ES
D	701			WG713
X	702	Ceramic Resonator		CSS1022
VR	701	Semi-fixed 220 $\Omega$ (B)		VRMB6VS221

## RESISTORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
R	701 713 719 729			RS1/10S473J
R	702			RS1/10S472J
R	703 704 705 717			RS1/10S104J
R	706			RS1/10S223J
R	707			RS1/10S181J
R	708 710			RS1/10S102J
R	709			RD1/4PS223JL
R	711			RS1/10S271J
R	712			RS1/10S561J
R	714 716 728			RS1/10S103J
R	715			RS1/4PS472JL
R	718			RS1/10S182J
R	720			RS1/10S222J
R	721 725 727			RS1/10S0R0J
R	722			RS1/10S682J
R	723			RD1/4PS152JL
R	724			RD1/4PS153JL
R	726			RS1/10S564J
R	730			RS1/10S823J
R	731			RS1/10S123J

## CAPACITORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C	701			CKSQYB223K50
C	702 703			CKSQYB391K50
C	704 714			CEA100M16LS2
C	705			CEA220M16LS
C	706 717			CKSQYB222K50

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C 707	713 724			CEA470M16LS
C 708				CCSQSL271J50
C 709				CKSQYB223K50
C 710	711 722			CKSQYB473K50
C 712				CEA010M50LS2
C 715	716			COMA102J50
C 718				COMA683J50
C 719				CEAR33M50LS2
C 720	721			COMA473J50

Unit Number :  
Unit Name : Dotby NR P.C.Board(KEH-3400SDK,KEH-3430B)

## MISCELLANEOUS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
IC 301				CXA1102P
IC 401				AN6263N
Q 301	401			XDC124ES
Q 303	304			2SC1740S
VR301	302	Semi-fixed 33kΩ (B)		VRMB6HS333

## RESISTORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
R 302				RS1/10S433J
R 303	304			RD1/4PS433JL
R 305	306			RD1/4PS153JL
R 307				RS1/10S473J
R 309				RD1/4PS472JL
R 310				RS1/10S221J
R 311	312			RD1/4PS272JL
R 313	314			RS1/10S332J
R 315	316			RS1/10S104J
R 401	402			RS1/10S822J
R 403				RS1/10S684J
R 404				RS1/10S510J

## CAPACITORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C 301	302 303 304			CEA4R7M35LS
C 305	306			CEAR68M50LS2
C 307	308			CEA101M10LS
C 310				CEA100M16LS2
C 311	312			CKSQYB223K50
C 401				CKSQYB103K50
C 402				CCSQCH330J50
C 403				CEA330M10LS
C 404				CEA0R1M50LS2

Unit Number :  
Unit Name : Key Board Unit(KEH-3400SDK,KEH-3430B,  
KEH-2400SDK,KEH-2430B)

-----	Circuit Symbol & No.	Part Name	-----	Part No.
IL 901	902	Lamp 14V40mA		CEL1013
IL 903		Lamp 14V40mA		CEL1168

Unit Number :  
Unit Name : Key Board Unit(KEH-2400B)

-----	Circuit Symbol & No.	Part Name	-----	Part No.
IL 901	902	Lamp 14V40mA		CEL-147
IL 903		Lamp 14V40mA		CEL1167

Unit Number :  
Unit Name : P.C.Board(A)

-----	Circuit Symbol & No.	Part Name	-----	Part No.
S 2		Switch(FWD/REV)		ESH1003
D 1		(KEH-3400SDK,KEH-3430B)		1SR-35-100A

Unit Number :  
Unit Name : P.C.Board(B)

-----	Circuit Symbol & No.	Part Name	-----	Part No.
S 3		Switch(TAPE/TUN)		ESH1004
S 4		Switch(MUTE)		CSN1005

## Miscellaneous Parts List

-----	Circuit Symbol & No.	Part Name	-----	Part No.
S 1		Switch(MUTE)		ESN1005
M 1		Motor Unit		EXA1162
HD 1		Head Unit		EXA1163
SO 1	(KEH-3400SDK,KEH-3430B)	Solenoid		EXP1010

**KEH-3400SDK**

Tuner Amp P.C.Board

Circuit Symbol & No.	KEH-3400SDK/WG	KEH-2400SDK/WG
	Part No.	Part No.
Q402	XDC124ES	.....
Q453,454	2SC1740S	.....
D460	MA700	.....
D956,957	WG713	.....
VR453	CCS1193	CCS1194
R351,352,355	.....	RD1/4PS102JL
R353,354	.....	RD1/4PS153JL
R405	RD1/4PS103JL	.....
R407	RS1/10S0R0J	.....
R489	RS1/10S563J	.....
R491	RS1/10S273J	.....
C351,352	.....	CEA100M16L2
C353	.....	CEA4R7M35L2
C477	CEA100M16LS2	.....

Tuner Amp P.C.Board

Circuit Symbol & No.	KEH-3430B/EW	KEH-2430B/EW
	Part No.	Part No.
Q402	XDC124ES	.....
Q453,454	2SC1740S	.....
D460	MA700	.....
D956,957	WG713	.....
VR453	CCS1193	CCS1194
R351,352,355	.....	RD1/4PS102JL
R353,354	.....	RD1/4PS153JL
R405	RD1/4PS103JL	.....
R407	RS1/10S0R0J	.....
R489	RS1/10S563J	.....
R491	RS1/10S273J	.....
C351,352	.....	CEA100M16L2
C353	.....	CEA4R7M35L2
C477	CEA100M16LS2	.....

# Service Manual

ORDER NO.  
**CRT1328**

## CASSETTE MECHANISM ASSEMBLY

# CX-197

### NOTE

- This service manual describes operation of the cassette mechanism incorporated in models listed in the table below.
- When performing repairs use this manual together with the specific manual for the model under repair.

Model	Service Manual	Cassette Mechanism Assembly
KE-1700B/IT KE-1700SDK/WG KE-1730B/EW KE-2700B/IT KE-2700SDK/WG KE-2730B/EW	CRT1325	EXK1710
KE-1700QR/UC KE-2303QR/UC KE-2750QR/ES	CRT1327	EXK1710
KE-2033/UC KE-2033/XSG/UC KE-2828/XSG/UC KE-2828/ES, UC	CRT1331	EXK1710
KE-3838/UC, ES KE-3838/XSG/UC KE-3838/XML/UC	CRT1332	EXK1710
KE-1700B/XML/IT	CRT1336	EXK1710
KE-1730B/XIB KE-1730B/XML/EW KE-1730B/XSG/EW	CRT1337	EXK1710
KE-2630B/XIB KE-2730B/XIB	CRT1340	EXK1710

Model	Service Manual	Cassette Mechanism Assembly
KE-1700QR/XML/UC	CRT1339	EXK1710
KE-3700SDK/WG KE-3730B/EW KE-3700B/IT	CRT1326	EXK1720
KE-2700QR/UC KE-3700QR/UC KE-3750QR/ES	CRT1327	EXK1720
KE-4848/ES, UC KE-4848/XML/UC KE-4848/XSG/UC	CRT1330	EXK1720
KE-250/US KE-3033/UC KE-3033/XSG/UC	CRT1332	EXK1720
KE-3730B/XIB	CRT1338	EXK1720
KE-4500R/US	CRT1327	EXK1750
KE-350/US	CRT1330	EXK1750

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## 1. DISASSEMBLY

*Note: Always use new washer and E washer at the time of reassembling.*

### ● How to Remove the Belt and Motor

1. Remove screw A fixing the FR lever. (Fig.1)
2. Remove three screws B fixing the sub-chassis unit. Move the unit first in Direction A, then in B direction, and lift it upward for removal. (Fig.2)
3. The belt can now be removed. (Fig.3)
4. Remove two screws C. The motor can be removed. (Fig.3)

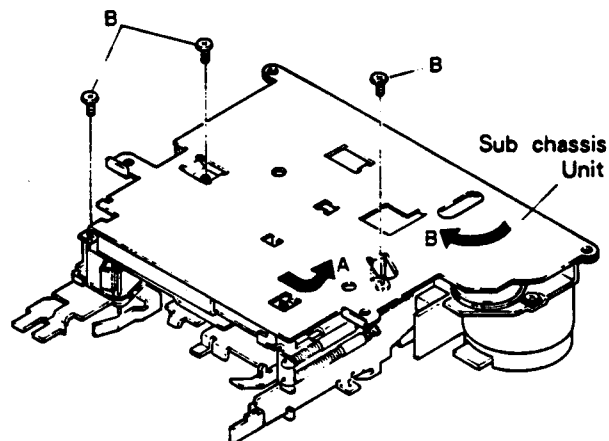


Fig. 2

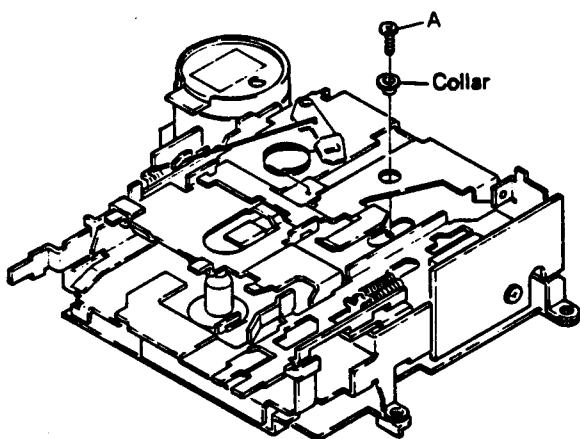


Fig. 1

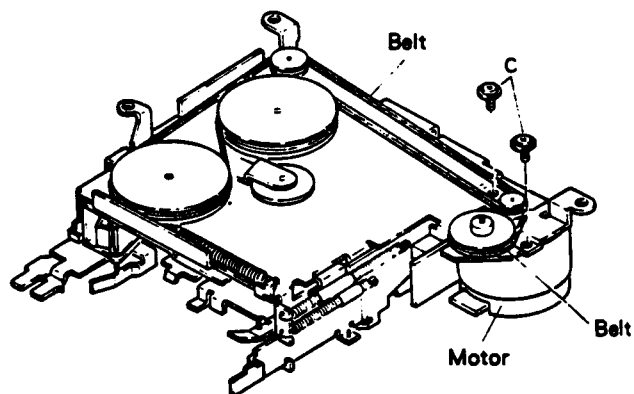


Fig. 3



# ● How to Remove the Pinch Roller Unit and Head

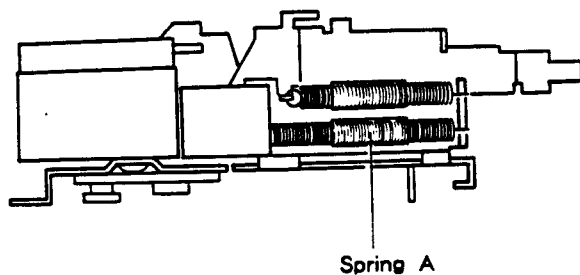


Fig. 4

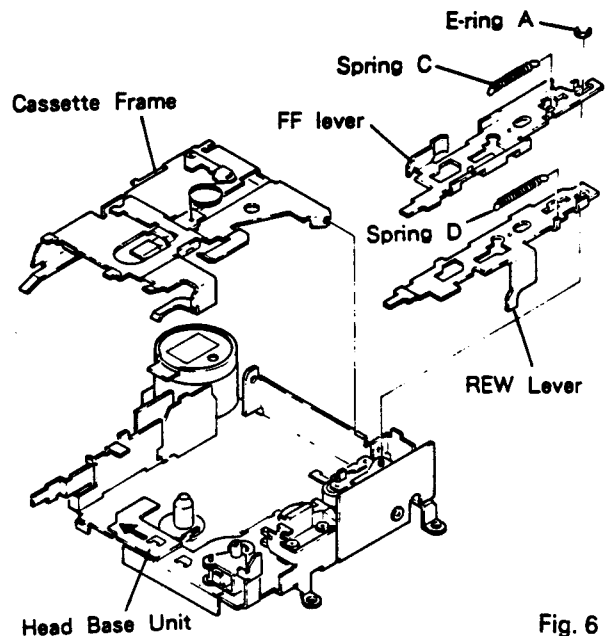


Fig. 6

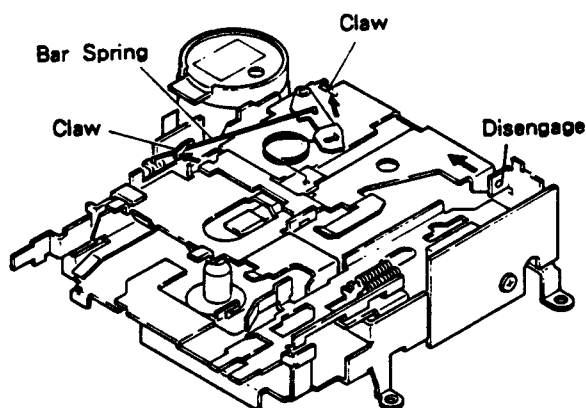


Fig. 5

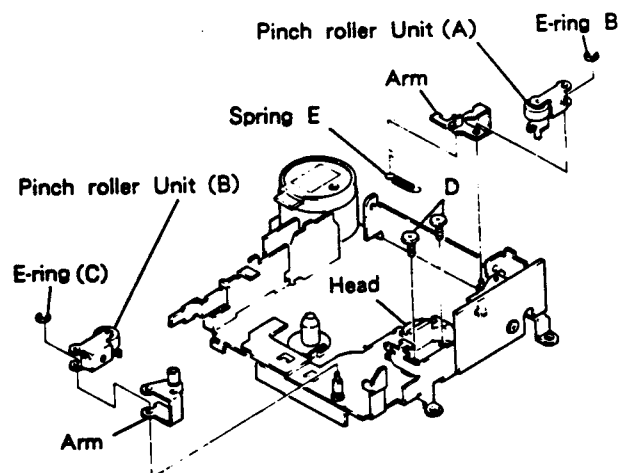


Fig. 7

1. Remove spring A. (Fig.4)
2. Extend claws (2 points). (Fig.5)
3. Remove bar Spring. (Fig.5)
4. Disengage projection by moving in a direction of arrow mark. (Fig.5)
5. The cassette frame is removed. (Fig.6)
6. Remove springs C and D. (Fig.6)
7. Remove E-ring A. (Fig.6)
8. Remove FF/REW levers. (Fig.6)

9. Move head base unit forward. (Fig.6)
10. Remove spring E. (Fig.7)
11. Remove E-ring B. The pinch roller unit (A) can be removed. (Fig.7)
12. Remove E-ring C. The pinch roller unit (B) can be removed. (Fig.7)
13. Remove two screws D. The head can be removed. (Fig.7)

## 2. ADJUSTMENT

### 2.1 CHECK POINTS OF CASSETTE MECHANISM

<p>Confirm the following items when replacing parts of the cassette mechanism.</p>	<p>■ Tape speed deviation:  <math>3,000 \begin{smallmatrix} +90 \\ -30 \end{smallmatrix} \text{ Hz}</math>  <math>(4.76 \text{ cm/s} \begin{smallmatrix} +3 \\ -1 \end{smallmatrix} \%)</math></p> <p>Using an NCT-111, measure the speed at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>	<p>■ Wow and flutter:  Less than 0.2% (WRMS)</p> <p>Using an NCT-111, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>
<p>■ Fast forward and rewinding time:  100 – 120 seconds</p> <p>Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.</p>	<p>■ Winding torque:  35 – 65g · cm</p> <p>Using a cassette type torque meter (100 g·cm), measure the minimum value while in the play mode. Measuring time shall be 2.5 – 6 seconds.</p>	<p>■ F.F. torque:  70 – 120g · cm</p> <p>Using a cassette type torque meter (120 g·cm), measure the value when the tape stops in the F.F. mode.</p>
<p>■ REW torque:  70 – 120g · cm</p> <p>Using a cassette type torque meter (120 g·cm), measure the value when the tape stops in the REW mode.</p>	<p>■ Back tension torque:  2 – 6g · cm</p> <p>After setting in the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.</p>	<p>■ Cassette loading force:  Less than 0.7 kg</p> <p>Push the center of the cassette and measure the force with a tension meter (3 kg).</p>

## 2.2 AZIMUTH ADJUSTMENT

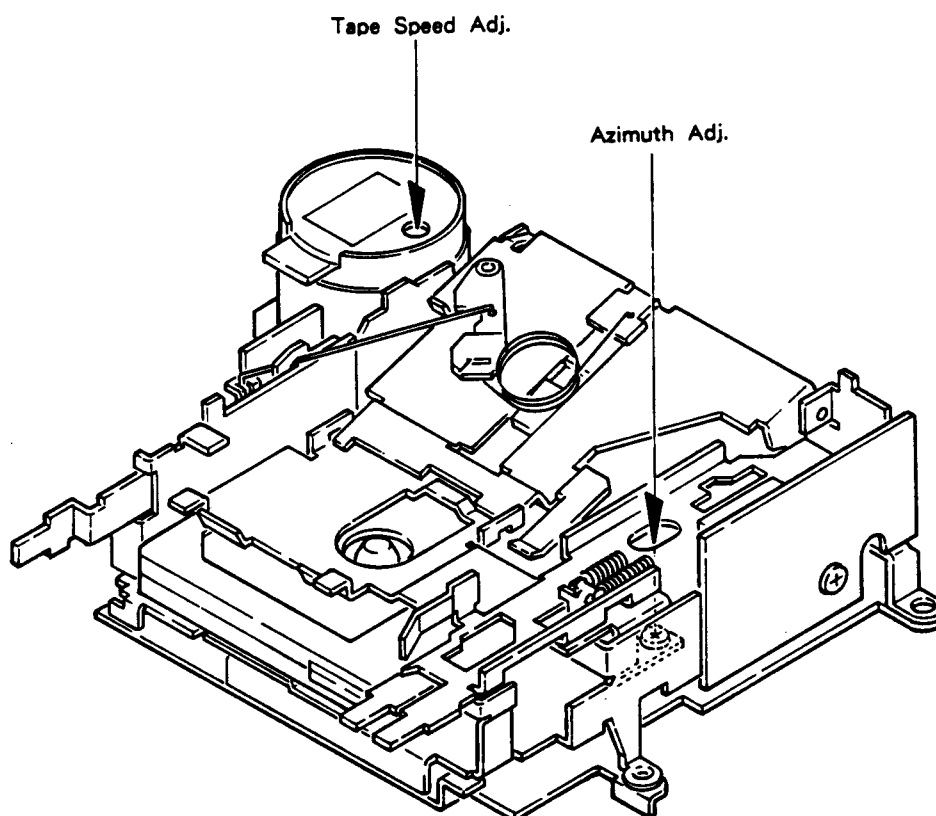


Fig. 8

### ● To Adjust (EXK1750)

1. Play "A" side of NCT-110 (10kHz, - 10dB). Adjust the screw for maximum output in forward and reverse directions.
2. Play "B" side in forward and reverse directions to confirm adjustment.

## 2.3 TAPE SPEED ADJUSTMENT

1. Reproduce NCT-111 (3kHz, - 10dB). Adjust the semifixed resistor so that frequency counter shows 3010Hz (+80Hz, - 40Hz).

### 3. MECHANISM DESCRIPTION

#### ● Loading operation

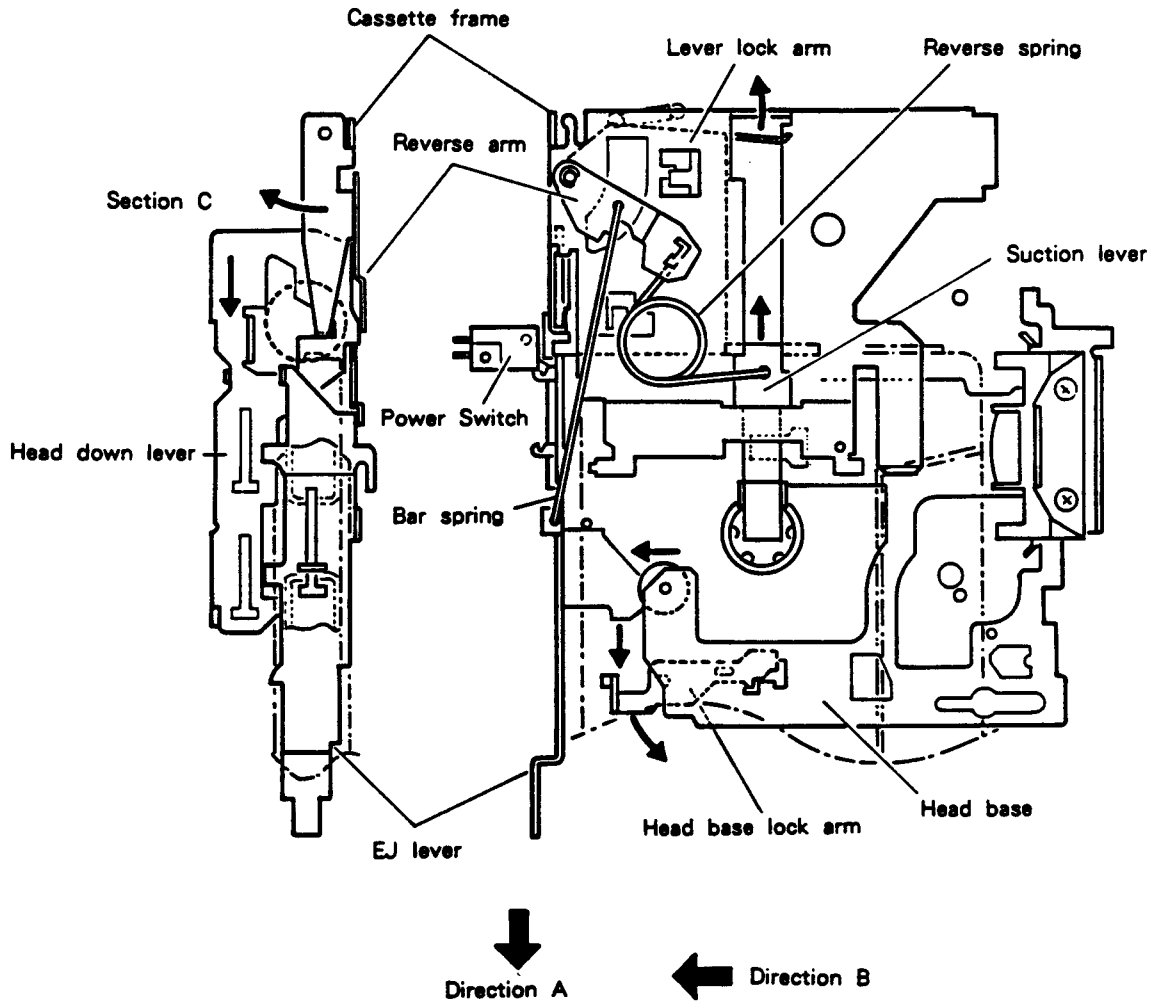


Fig. 9

1. A cassette tape, when inserted, pushes a suction lever.  
The reverse spring rotates to move past the reverse point. Then, the cassette is drawn by a force of a reverse spring (suction operation).
2. After suction, the lever lock arm is pressed to be unlocked.
3. The head down lever is unlocked and the lever moves in Direction A.
4. While moving, the EJ lever turns ON the power switch.
5. The cassette frame engaged to the section C of the head down lever turns. (Cassette drop operation)
6. At the stroke end, the head down lever turns the head base lock arm.
7. A Stopper of the head base lock arm is released, and the head base moves forward (Direction B).

# ● MS Operation (EXK1720, EXK1750)

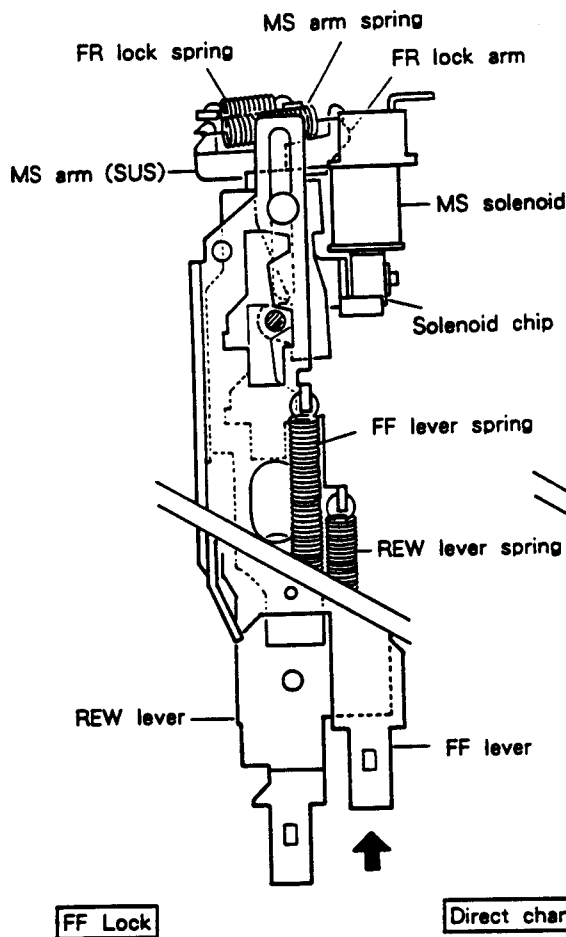


Fig. 10

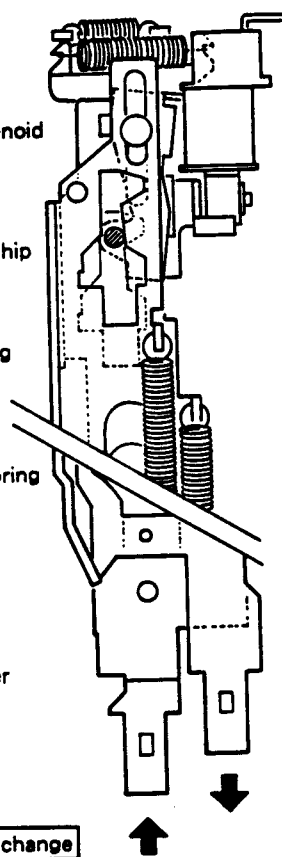


Fig. 11

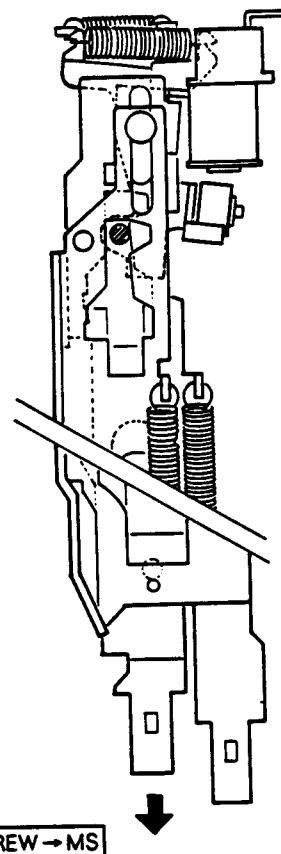


Fig. 12

1. The MS solenoid is normally energized to attract the solenoid chip during play and F/R operation. The solenoid chip applies counterclockwise force to the MS arm, thereby putting the FR lock arm into rotation via the MS arm spring. The MS lock shaft of FR lock arm unit catches a taper in a different hole of the FF (or REW) lever to lock the FF (or REW) lever.
2. In case of direct change, pressing the unlocked FF or REW lever causes the lever taper to turn the FR lock arm clockwise. This in turn presses the MS arm spring and FR lock spring to release the locked lever.
3. When the no recording section is caught and the power supply to the solenoid is cut off, the solenoid loses the attraction force and disables locking of the F/R lever. As a result, the F/R lever is unlocked. (This unlocking occurs because the force to retain the lever cannot be generated by the FR lock spring only.)

## ● Direction Changeover Operation

### (1) FWD play operation

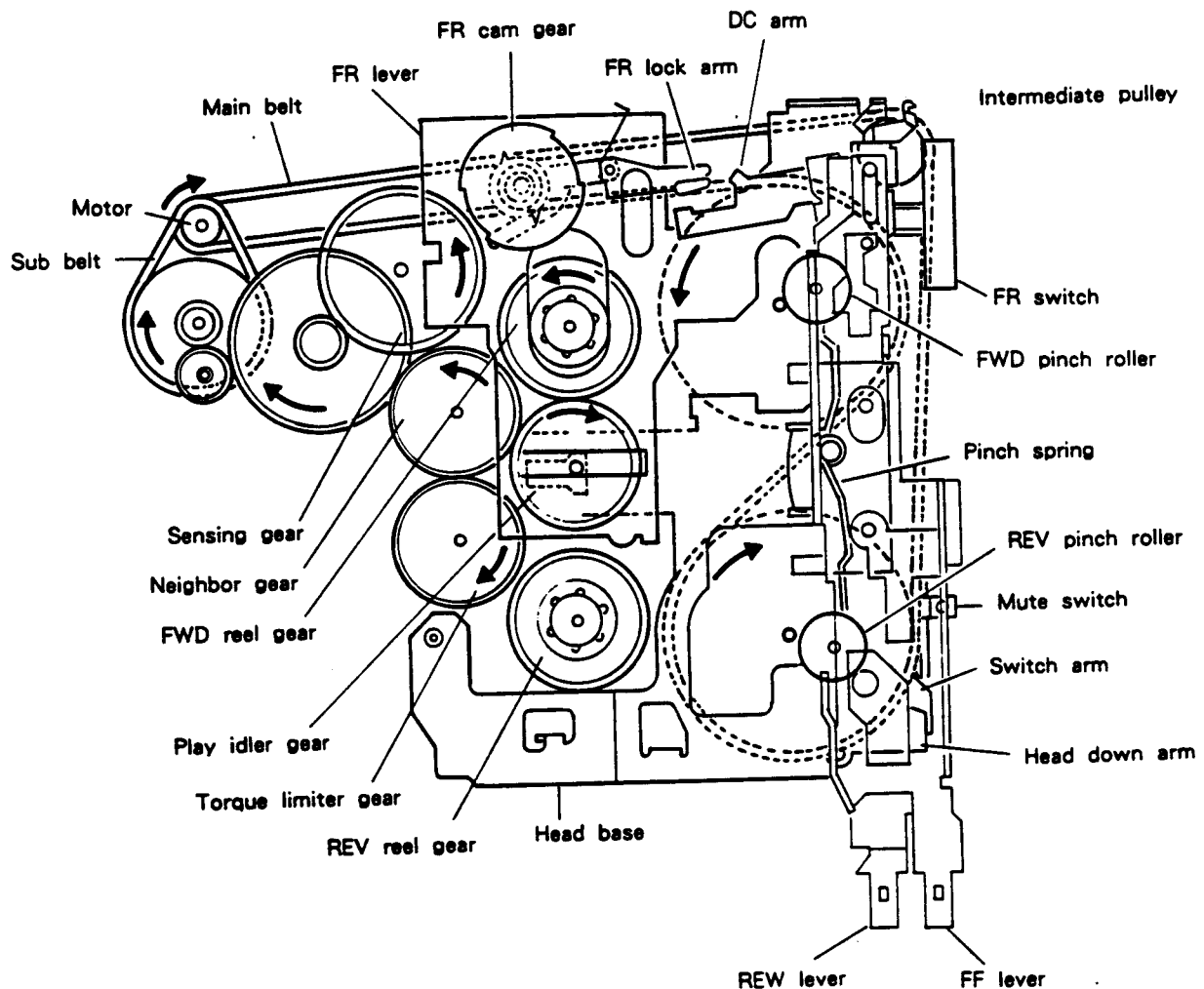


Fig. 13

When the FR lever is in the top position, the pinch spring is in the upper position to press the FWD pinch roller. The FR switch also moves upward and its reaction causes downward force on the FR lever. The spring attached to the FR lever applies upward force to the play idler gear from above to engage it with the neighbor gear and FWD reel gear.

The tape is driven in the FWD direction by a running motor and taken up by the REV reel gear via the torque limiter gear.

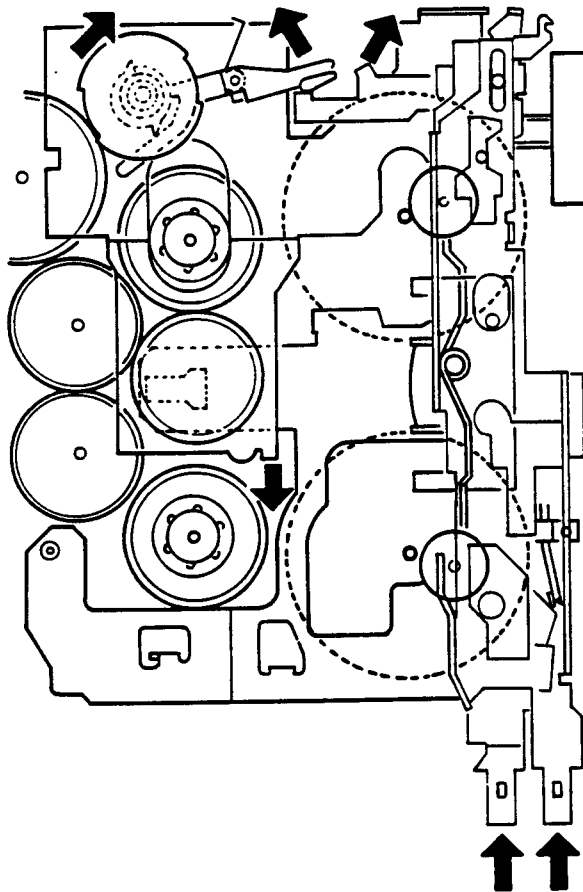
**(2) Direction change operation**

Fig. 14

The direction is changed by pressing FF and REW levers simultaneously. The DC arm turns along a cam groove of FF and REW levers to turn the FR lock arm. As the FR lever applies force from above downward, the FR cam gear turns and the notch meshes with the sensing gear. As a result, the FR lever moves downward. When FF and REW levers are kept pressed, the lock arm contacts the outside of the FR cam gear to prevent changeover between FWD and REV. Pressing FF and REW levers also cause the mute switch to be turned ON. In other words, muting is valid while FF and REW levers are pressed. (Fig.14)

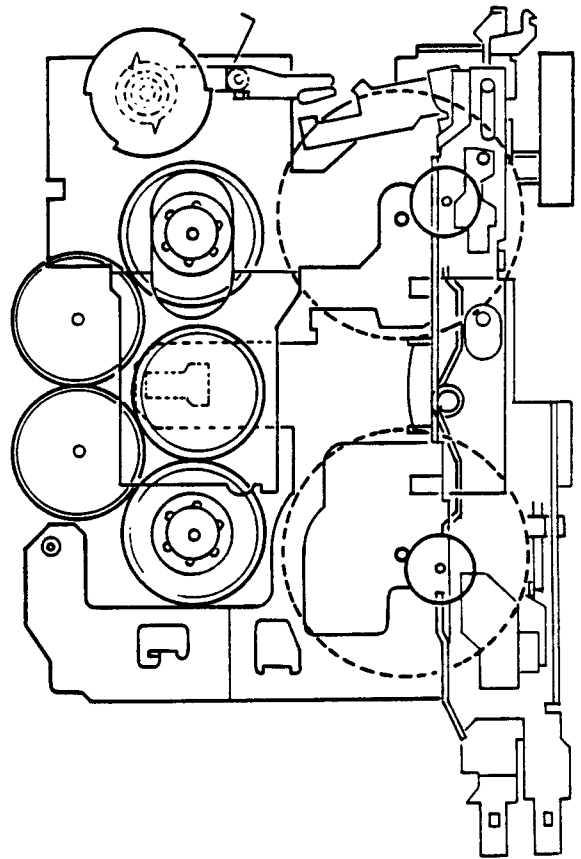
**(3) REV play operation**

Fig. 15

Moving the NR lever up and down causes changeover among the pinch roller, FR switch, and play idler gear. With FF and REW levers having been returned, the FR lock arm returns to the normal lock position and locks the gear when the FR gear completes an one-half turn. The mute arm also returns to turn OFF the mute switch. The reverse play state is thus obtained. (The same applies to changeover from REV to FWD.)

# ● FF/REW Operation

## (1) FWD play operation

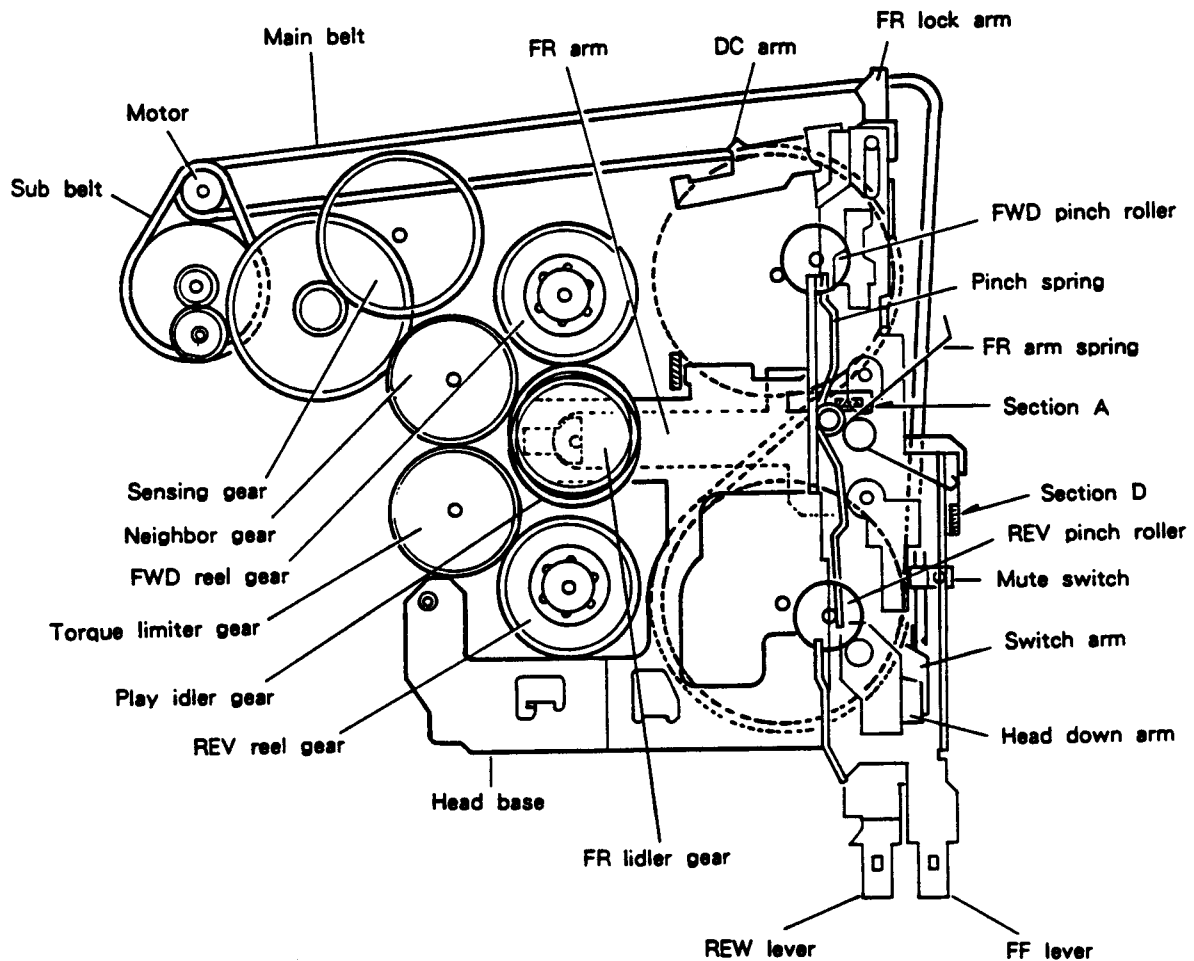


Fig. 16

In the FWD (REV) play state, the head base is fixed by a chassis stopper. The pinch spring presses the pinch roller into contact with a capstan to drive forward the tape. The REV reel gear takes up the tape via the torque limiter gear. In this case, the FR idler gear on the FR arm is centered by Section A of the head base and thus not rotating.



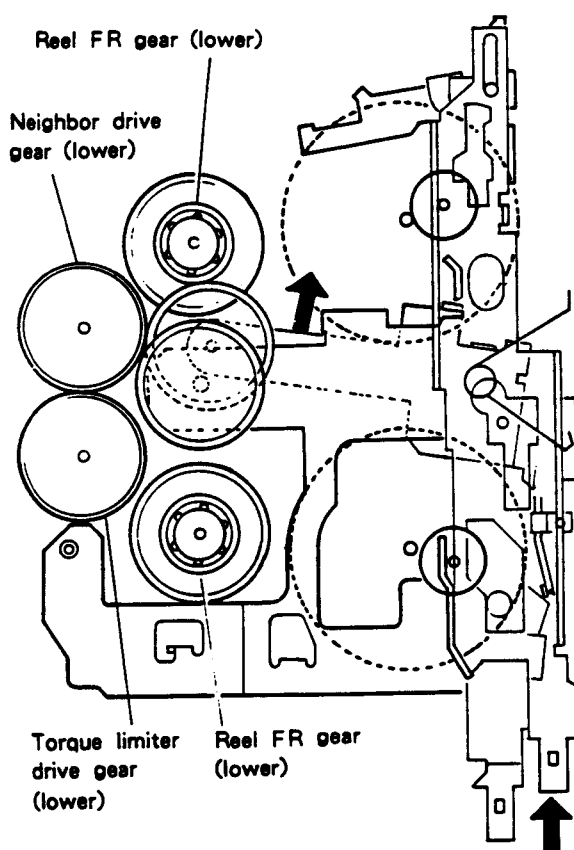
**(2) FF Operation**

Fig. 17

FF operation is obtained by pressing and locking the FF lever. As the FF lever is pressed, the switch arm turns to turn ON the mute switch. The head base is moved backward along the FF lever cam groove.

As the head base moves backward to release the pinch roller from the capstan, the play idler gear is simultaneously disengaged from the reel gear. As the head base moves backward, the FR arm centered by Section A is put into rotation by the FR arm spring to engage with the FWD side FR gear.

The FF lever is locked by the FR lock arm and performs the FF operation. (Fig.17)

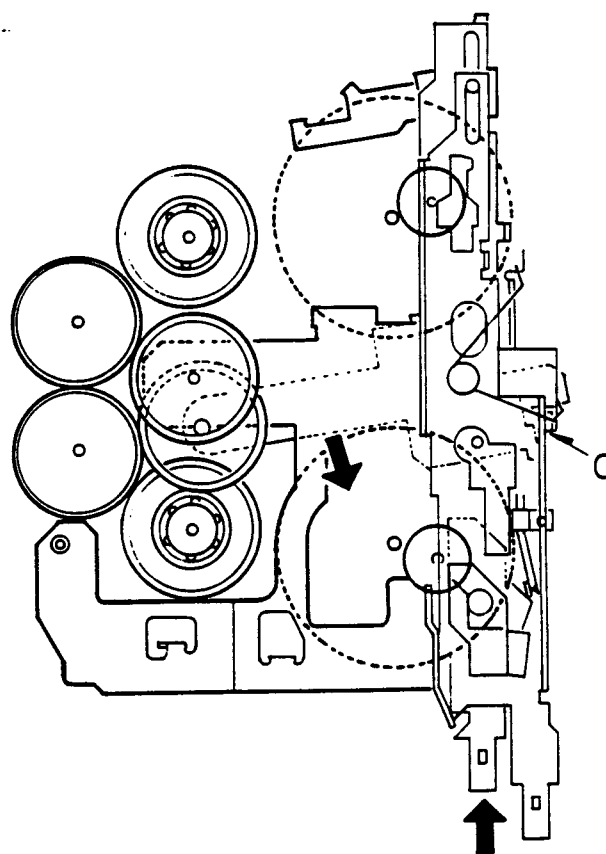
**(3) REW operation**

Fig. 18

Similar to the case of FF operation, pressing the REW lever causes the mute switch to be turned ON.

Simultaneously with release of the pinch roller from the capstan, the play idler gear is disengaged from the reel gear.

Section D of the REW lever presses a movable side of the FR arm spring, thereby engaging the FR gear to the FR gear on the REV side.

The REW lever is locked by the lock arm, performing the REW operation. This operation is cancelled when Section C is turned by the lever return spring. (Fig.18)

## ● Sensing Operation

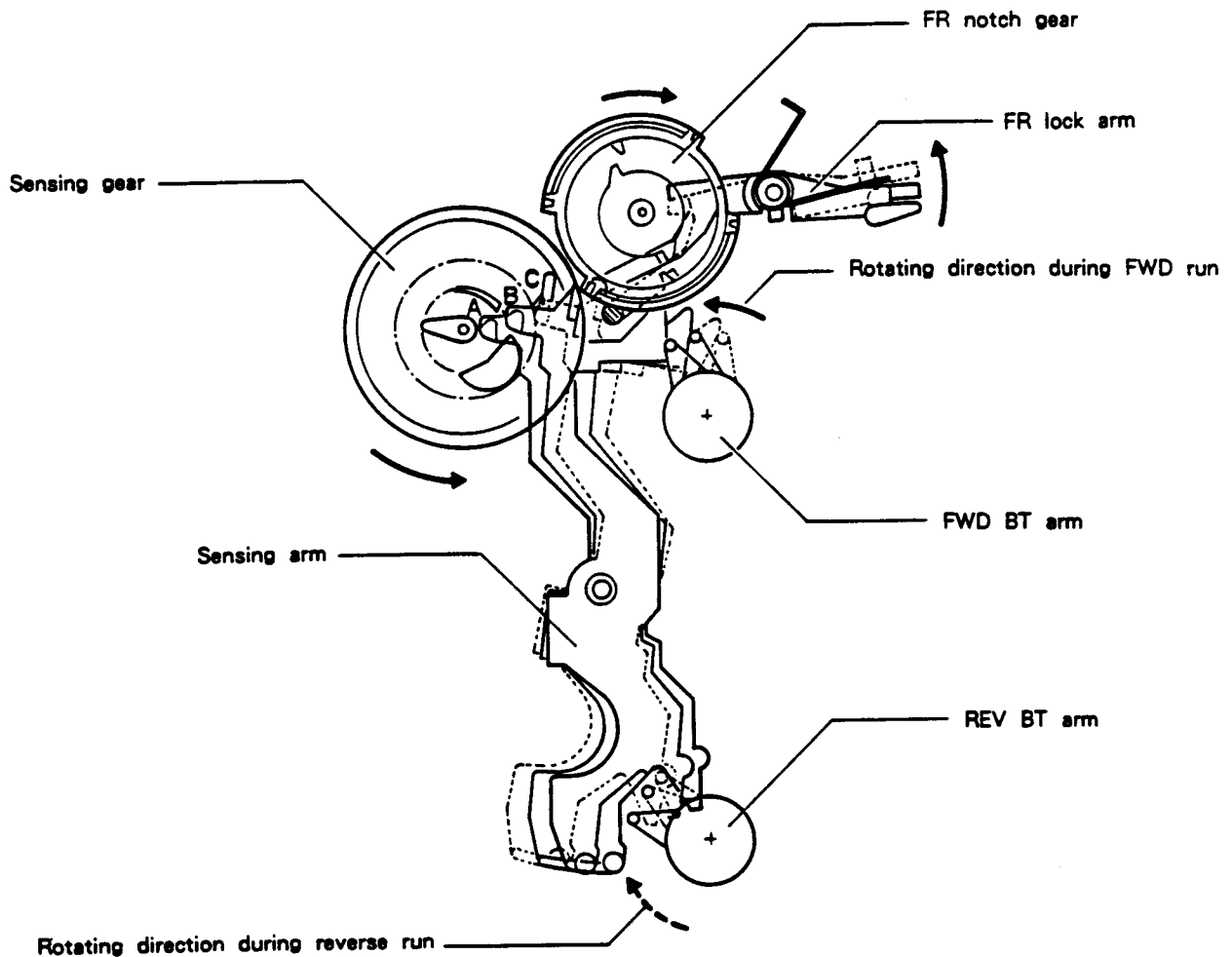


Fig. 19

1. During tape run: The sensing arm keeps oscillation between A and B under a force of the FWD BT arm (or REV BT arm).
2. At end of tape: The force of the BT arm is lost. The sensing arm stops at Position B, then pushed out to Position C by a crescent cam of the sensing gear.

### 3. Change of run direction:

The FR lock arm turns counter-clockwise along with movement of the sensing arm. The FR notch gear is unlocked and begins to turn.

ADDITIONAL

 **PIONEER**  
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# Service Manual

ORDER NO.  
**CRT1428**

CASSETTE MECHANISM ASSEMBLY

## CX-197

### NOTE

- This service manual describes operation of the cassette mechanism incorporated in models listed in the table below.
- When performing repairs use this manual together with the specific manual for the model under repair.
- CX197 (CRT1328) does not have a Key-off function, but the key-off function is shown in this service manual of the CX-197 (CRT1428).

Model	Service Manual	Cassette Mechanism Assembly
KEH-M7400RDS/EW	CRT1429	EXK1735

Model	Service Manual	Cassette Mechanism Assembly

**PIONEER ELECTRONIC CORPORATION**

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## 1. DISASSEMBLY

*Note: Always use new washer and E washer at the time of reassembling.*

### ● How to Remove the Belt and Motor

1. Remove screw A fixing the FR lever. (Fig.1)
2. Remove three screws B fixing the sub-chassis unit. Move the unit first in Direction A, then in B direction, and lift it upward for removal. (Fig.2)
3. The belt can now be removed. (Fig.3)
4. Remove two screws C. The motor can be removed. (Fig.3)

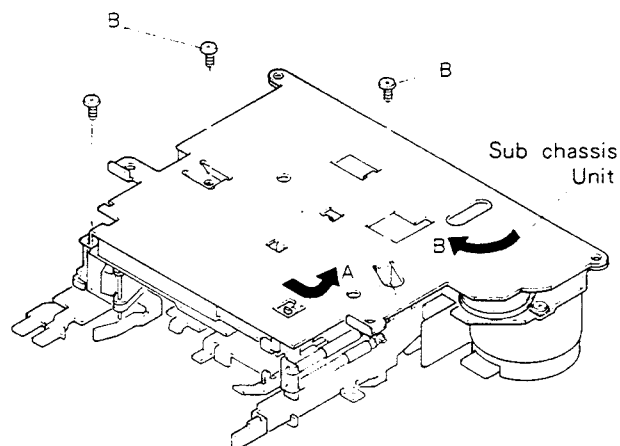


Fig. 2

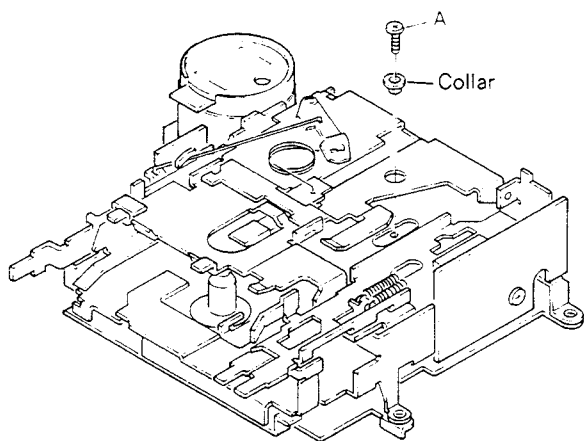


Fig. 1

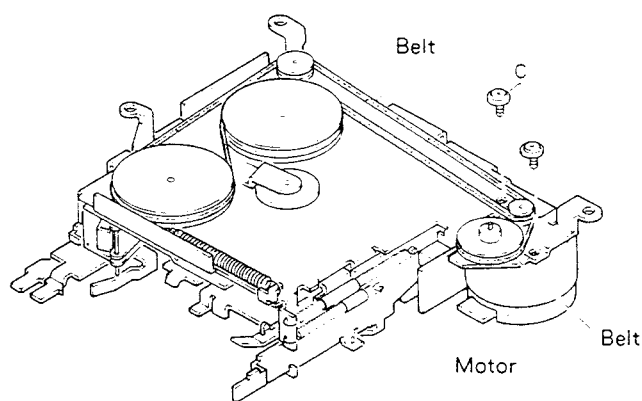
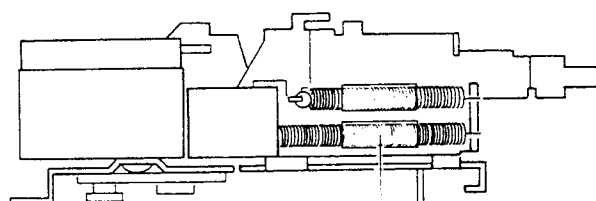


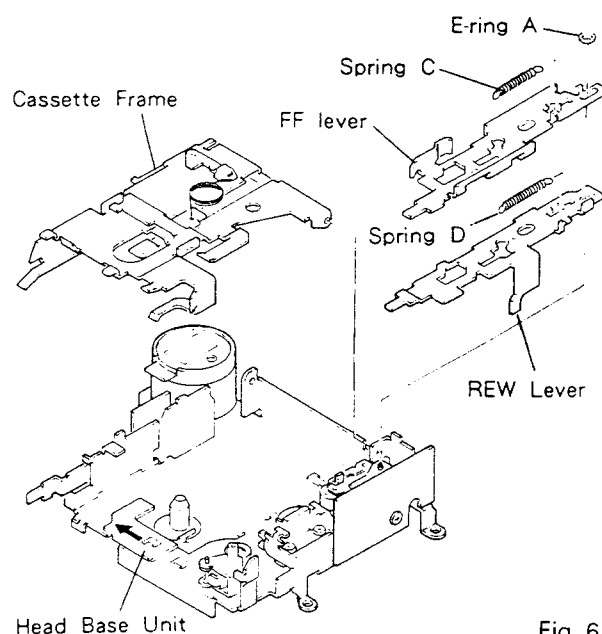
Fig. 3

# ● How to Remove the Pinch Roller Unit and Head



Spring A

Fig. 4



Head Base Unit

Fig. 6

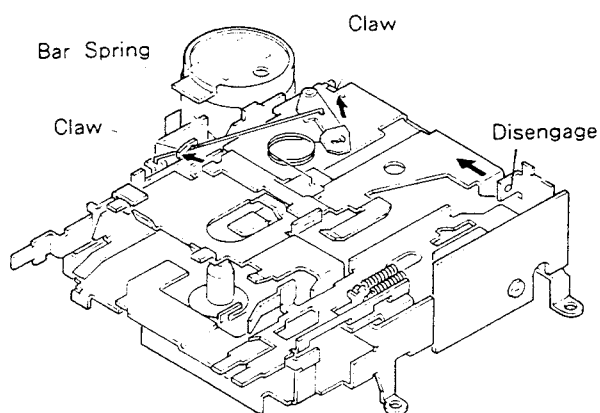


Fig. 5

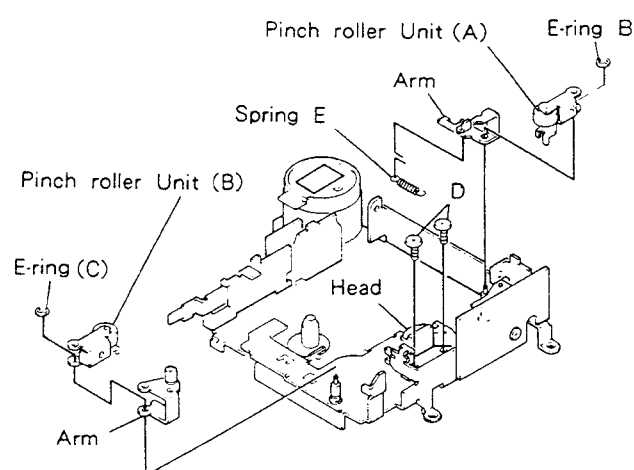


Fig. 7

1. Remove spring A. (Fig.4)
2. Extend claws (2 points). (Fig.5)
3. Remove bar Spring. (Fig.5)
4. Disengage projection by moving in a direction of arrow mark. (Fig.5)
5. The cassette frame is removed. (Fig.6)
6. Remove springs C and D. (Fig.6)
7. Remove E-ring A. (Fig.6)
8. Remove FF/REW levers. (Fig.6)
9. Move head base unit forward. (Fig.6)
10. Remove spring E. (Fig.7)
11. Remove E-ring B. The pinch roller unit (A) can be removed. (Fig.7)
12. Remove E-ring C. The pinch roller unit (B) can be removed. (Fig.7)
13. Remove two screws D. The head can be removed. (Fig.7)

## 2. ADJUSTMENT

### 2.1 CHECK POINTS OF CASSETTE MECHANISM

<p>Confirm the following items when replacing parts of the cassette mechanism.</p>	<p>■ Tape speed deviation:  <math>3,000 \begin{smallmatrix} +90 \\ -30 \end{smallmatrix} \text{ Hz}</math>  <math>(4.76 \text{ cm/s} \begin{smallmatrix} +3 \\ -1 \end{smallmatrix} \%)</math></p> <p>Using an NCT-111, measure the speed at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>	<p>■ Wow and flutter:  Less than 0.2% (WRMS)</p> <p>Using an NCT-111, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>
<p>■ Fast forward and rewinding time:  100 – 120 seconds</p> <p>Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.</p>	<p>■ Winding torque:  35 – 65g • cm</p> <p>Using a cassette type torque meter (100 g•cm), measure the minimum value while in the play mode. Measuring time shall be 2.5 – 6 seconds.</p>	<p>■ F.F. torque:  70 – 120g • cm</p> <p>Using a cassette type torque meter (120 g•cm), measure the value when the tape stops in the F.F. mode.</p>
<p>■ REW torque:  70 – 120g • cm</p> <p>Using a cassette type torque meter (120 g•cm), measure the value when the tape stops in the REW mode.</p>	<p>■ Back tension torque:  2 – 6g • cm</p> <p>After setting in the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.</p>	<p>■ Cassette loading force:  Less than 0.7 kg</p> <p>Push the center of the cassette and measure the force with a tension meter (3 kg).</p>

## 2.2 AZIMUTH ADJUSTMENT

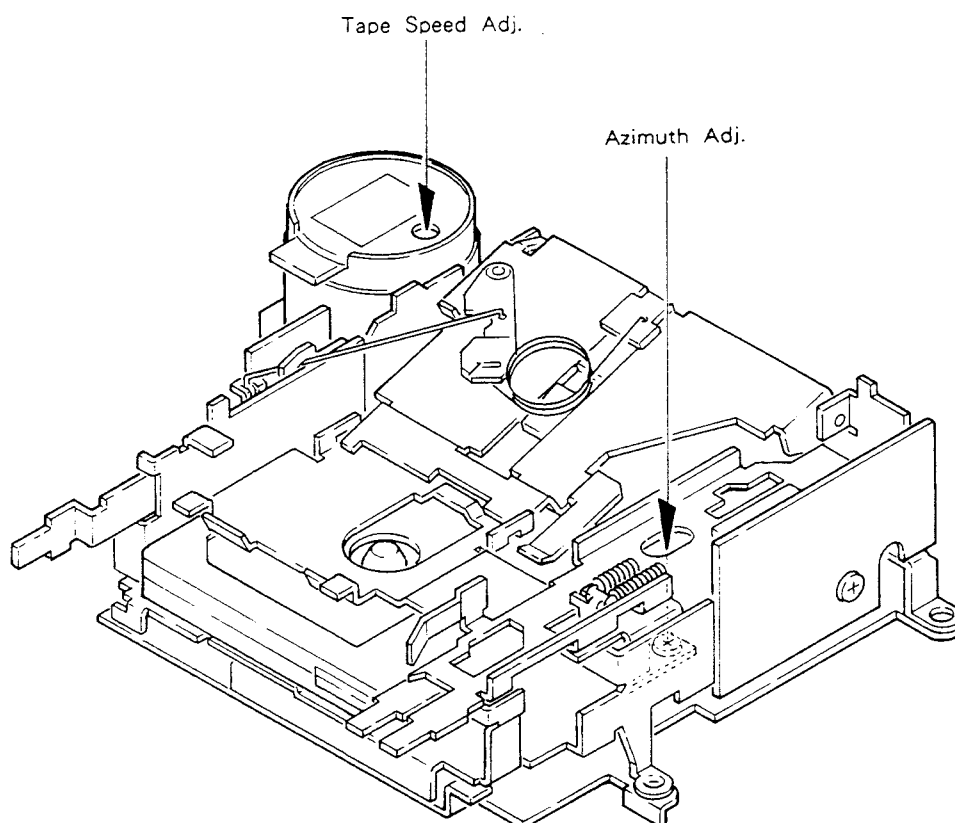


Fig. 8

### ● To Adjust (EXK1750)

1. Play "A" side of NCT-110 (10kHz, - 10dB). Adjust the screw for maximum output in forward and reverse directions.
2. Play "B" side in forward and reverse directions to confirm adjustment.

## 2.3 TAPE SPEED ADJUSTMENT

1. Reproduce NCT-111 (3kHz, - 10dB). Adjust the semifixed resistor so that frequency counter shows 3010Hz (+80Hz, - 40Hz).

### 3. MECHANISM DESCRIPTION

#### ● Loading operation

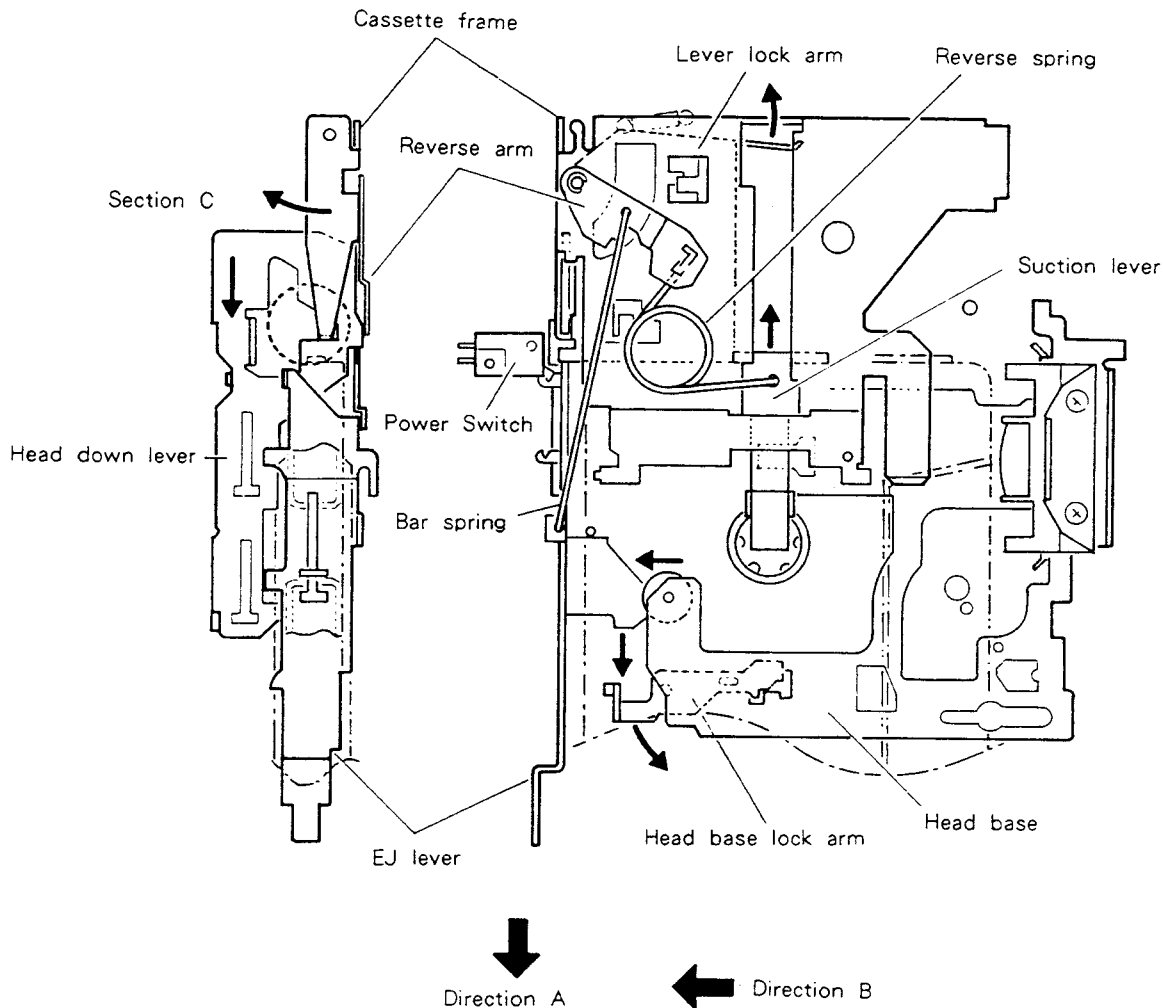


Fig. 9

1. A cassette tape, when inserted, pushes a suction lever.  
The reverse spring rotates to move past the reverse point. Then, the cassette is drawn by a force of a reverse spring (suction operation).
2. After suction, the lever lock arm is pressed to be unlocked.
3. The head down lever is unlocked and the lever moves in Direction A.
4. While moving, the EJ lever turns ON the power switch.
5. The cassette frame engaged to the section C of the head down lever turns. (Cassette drop operation)
6. At the stroke end, the head down lever turns the head base lock arm.
7. A Stopper of the head base lock arm is released, and the head base moves forward (Direction B).



● MS Operation

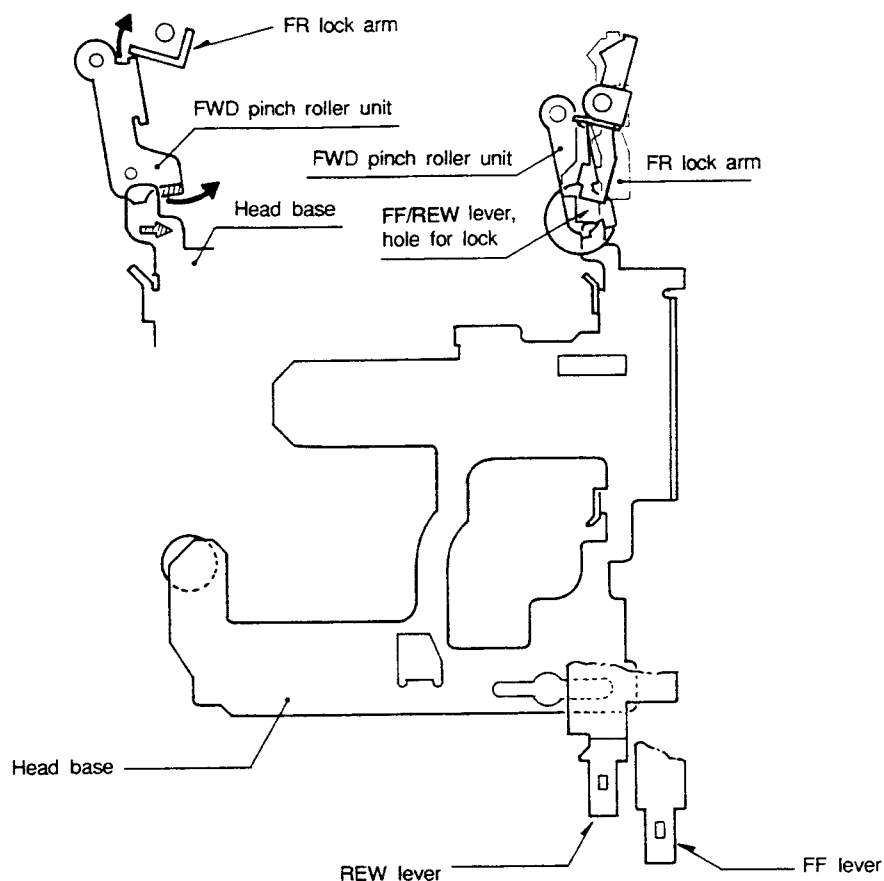


Fig. 10

The head base is moved back by switching the key-off solenoid off from the REW or FF condition, and is lowered (rotated) FWD pinch roller unit. The FWD pinch roller unit presses the bending part of FR lock arm to make it rotate in the direction that releases the lock. The lock of the FF/REW lever is consequently released. Subsequently, the head comes out from the ATSC to enable PLAY condition.

## ● Direction Changeover Operation

### (1) FWD play operation

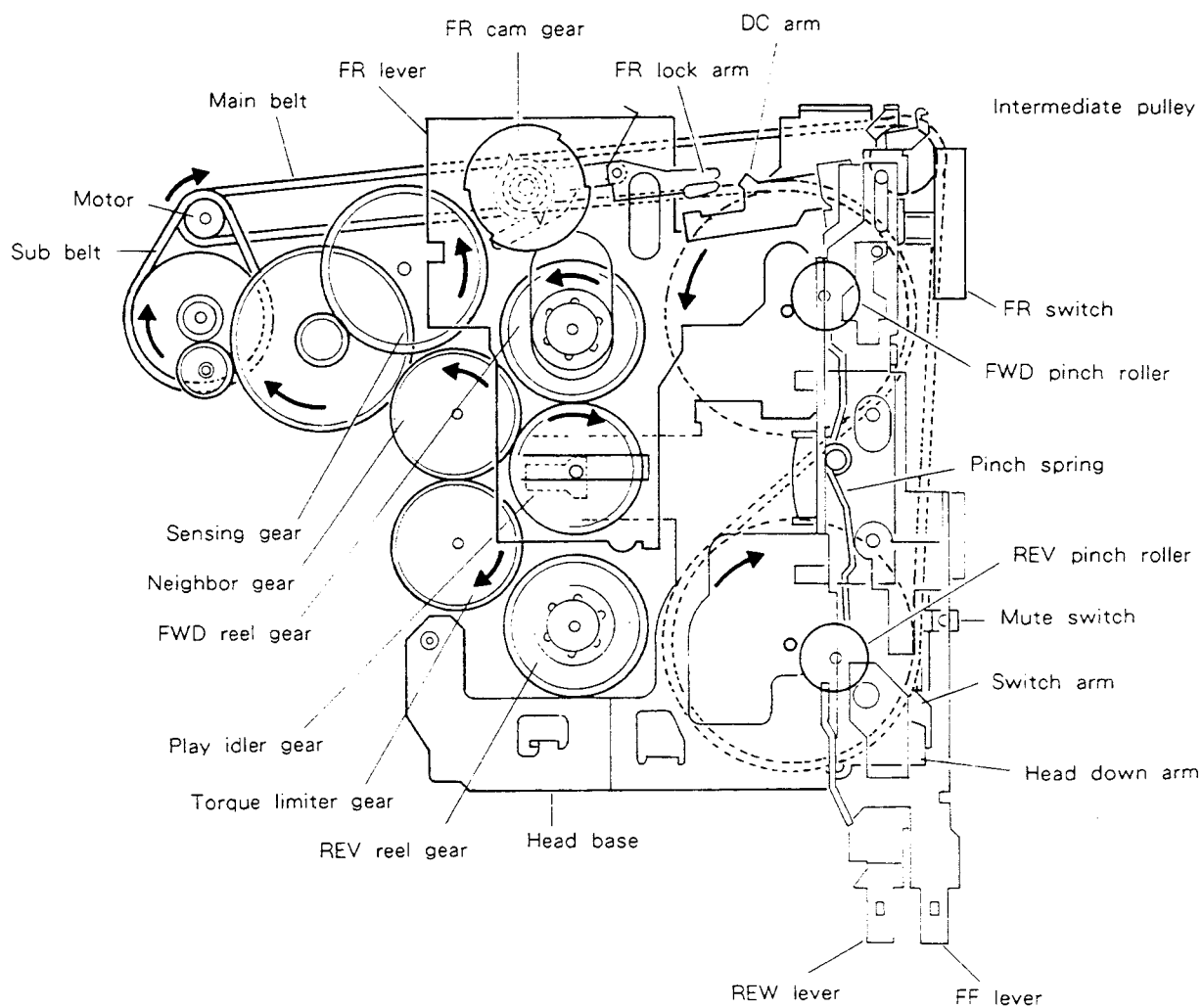


Fig. 11

When the FR lever is in the top position, the pinch spring is in the upper position to press the FWD pinch roller. The FR switch also moves upward and its reaction causes downward force on the FR lever. The spring attached to the FR lever applies upward force to the play idler gear from above to engage it with the neighbor gear and FWD reel gear.

The tape is driven in the FWD direction by a running motor and taken up by the REV reel gear via the torque limiter gear.

## (2) Direction change operation

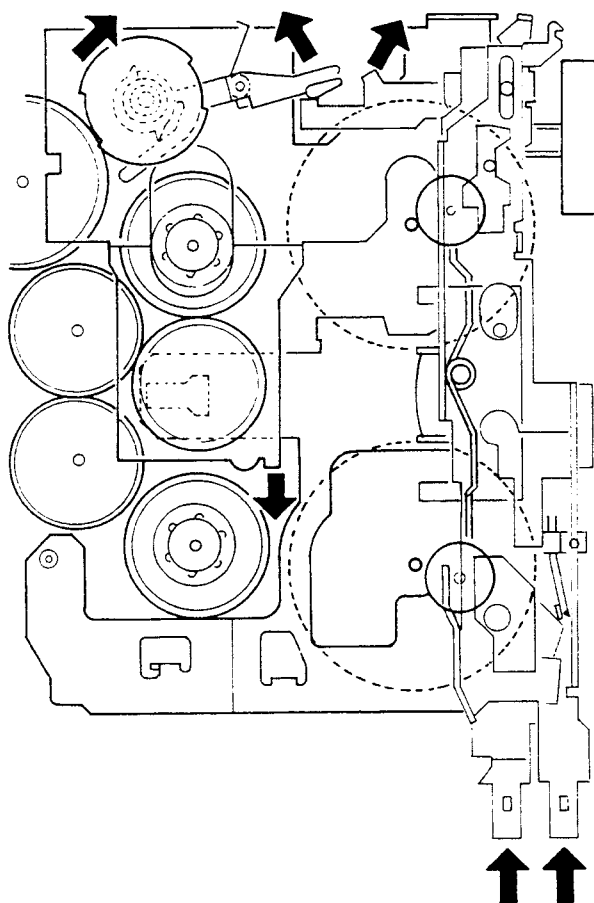


Fig. 12

The direction is changed by pressing FF and REW levers simultaneously. The DC arm turns along a cam groove of FF and REW levers to turn the FR lock arm. As the FR lever applies force from above downward, the FR cam gear turns and the notch meshes with the sensing gear.

As a result, the FR lever moves downward.

When FF and REW levers are kept pressed, the lock arm contacts the outside of the FR cam gear to prevent changeover between FWD and REV. Pressing FF and REW levers also cause the mute switch to be turned ON. In other words, muting is valid while FF and REW levers are pressed. (Fig.12)

## (3) REV play operation

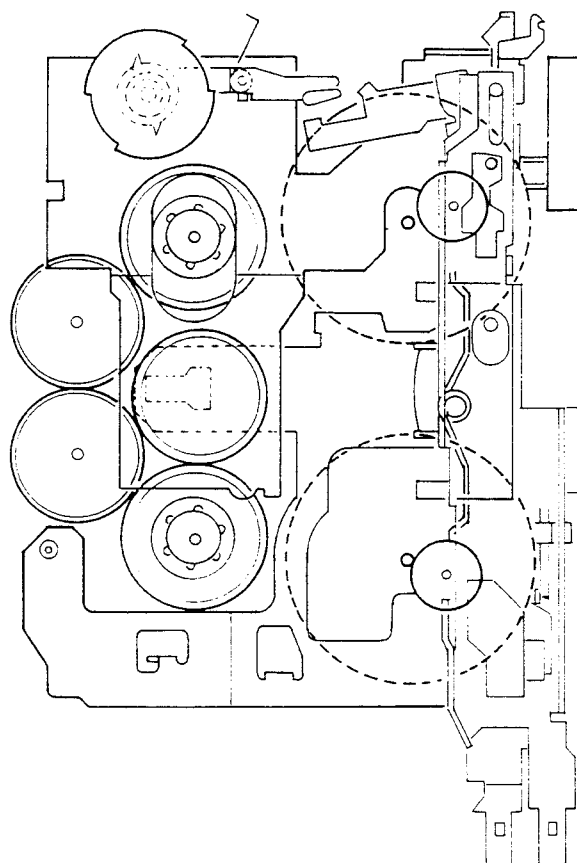


Fig. 13

Moving the NR lever up and down causes changeover among the pinch roller, FR switch, and play idler gear. With FF and REW levers having been returned, the FR lock arm returns to the normal lock position and locks the gear when the FR gear completes an one-half turn. The mute arm also returns to turn OFF the mute switch. The reverse play state is thus obtained. (The same applies to changeover from REV to FWD.)

● **FF/REW Operation**

**(1) FWD play operation**

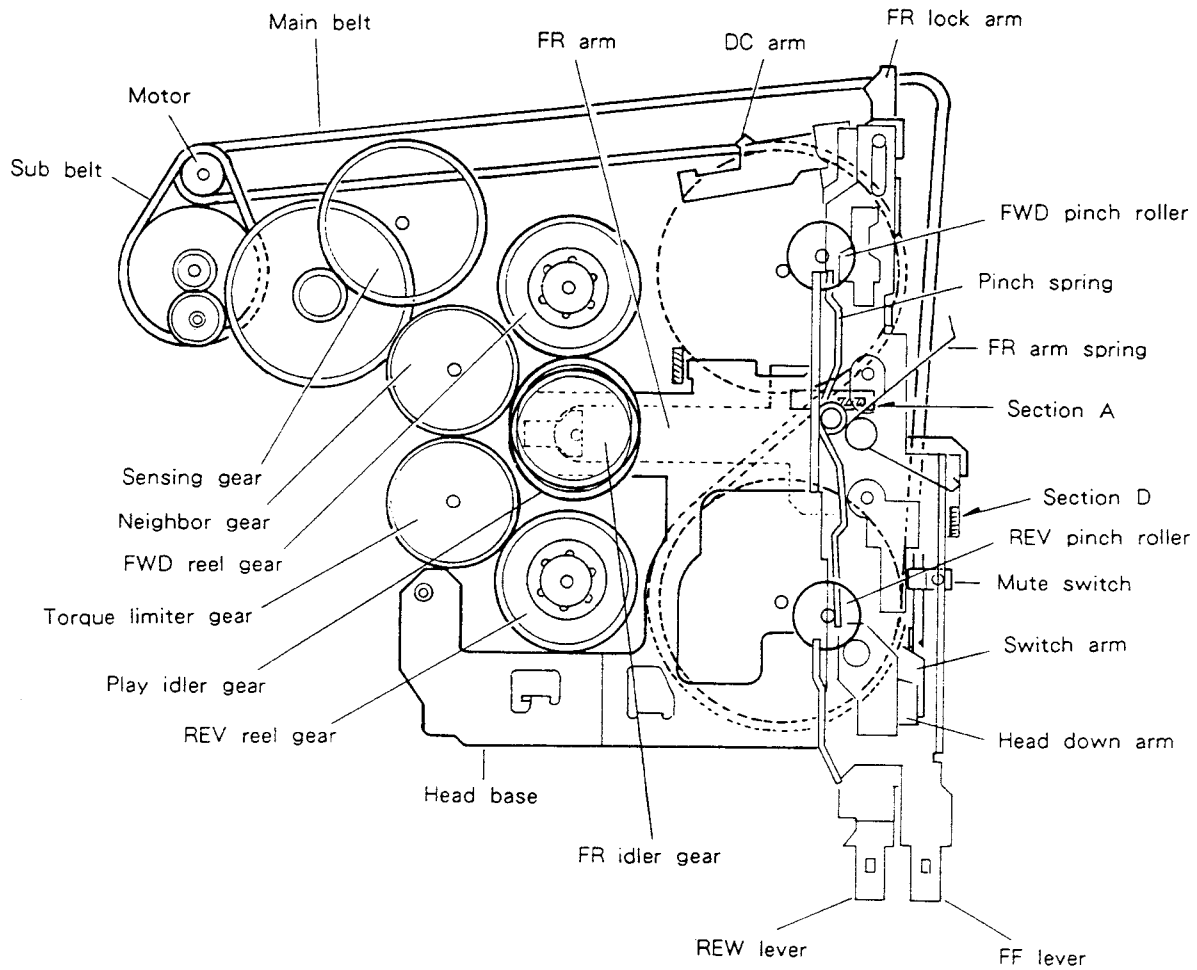


Fig. 14

In the FWD (REV) play state, the head base is fixed by a chassis stopper. The pinch spring presses the pinch roller into contact with a capstan to drive forward the tape. The REV reel gear takes up the tape via the torque limiter gear. In this case, the FR idler gear on the FR arm is centered by Section A of the head base and thus not rotating.

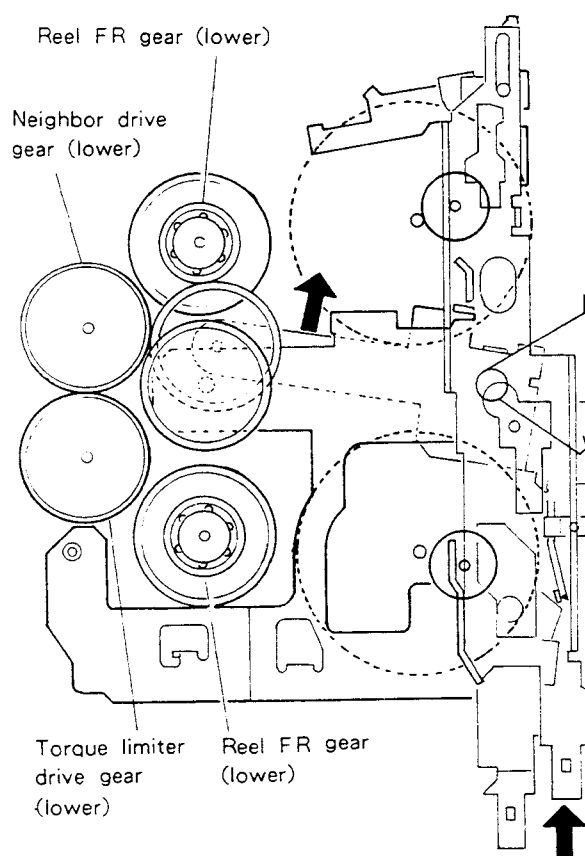
**(2) FF Operation**

Fig. 15

FF operation is obtained by pressing and locking the FF lever. As the FF lever is pressed, the switch arm turns to turn ON the mute switch. The head base is moved backward along the FF lever cam groove.

As the head base moves backward to release the pinch roller from the capstan, the play idler gear is simultaneously disengaged from the reel gear. As the head base moves backward, the FR arm centered by Section A is put into rotation by the FR arm spring to engage with the FWD side FR gear.

The FF lever is locked by the FR lock arm and performs the FF operation. (Fig.15)

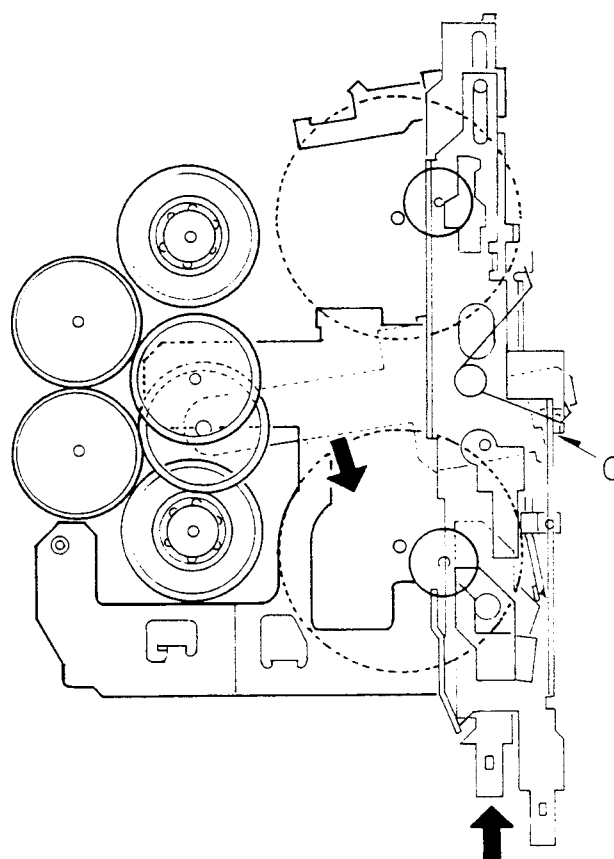
**(3) REW operation**

Fig. 16

Similar to the case of FF operation, pressing the REW lever causes the mute switch to be turned ON.

Simultaneously with release of the pinch roller from the capstan, the play idler gear is disengaged from the reel gear.

Section D of the REW lever presses a movable side of the FR arm spring, thereby engaging the FR gear to the FR gear on the REV side.

The REW lever is locked by the lock arm, performing the REW operation. This operation is cancelled when Section C is turned by the lever return spring. (Fig.16)

● Sensing Operation

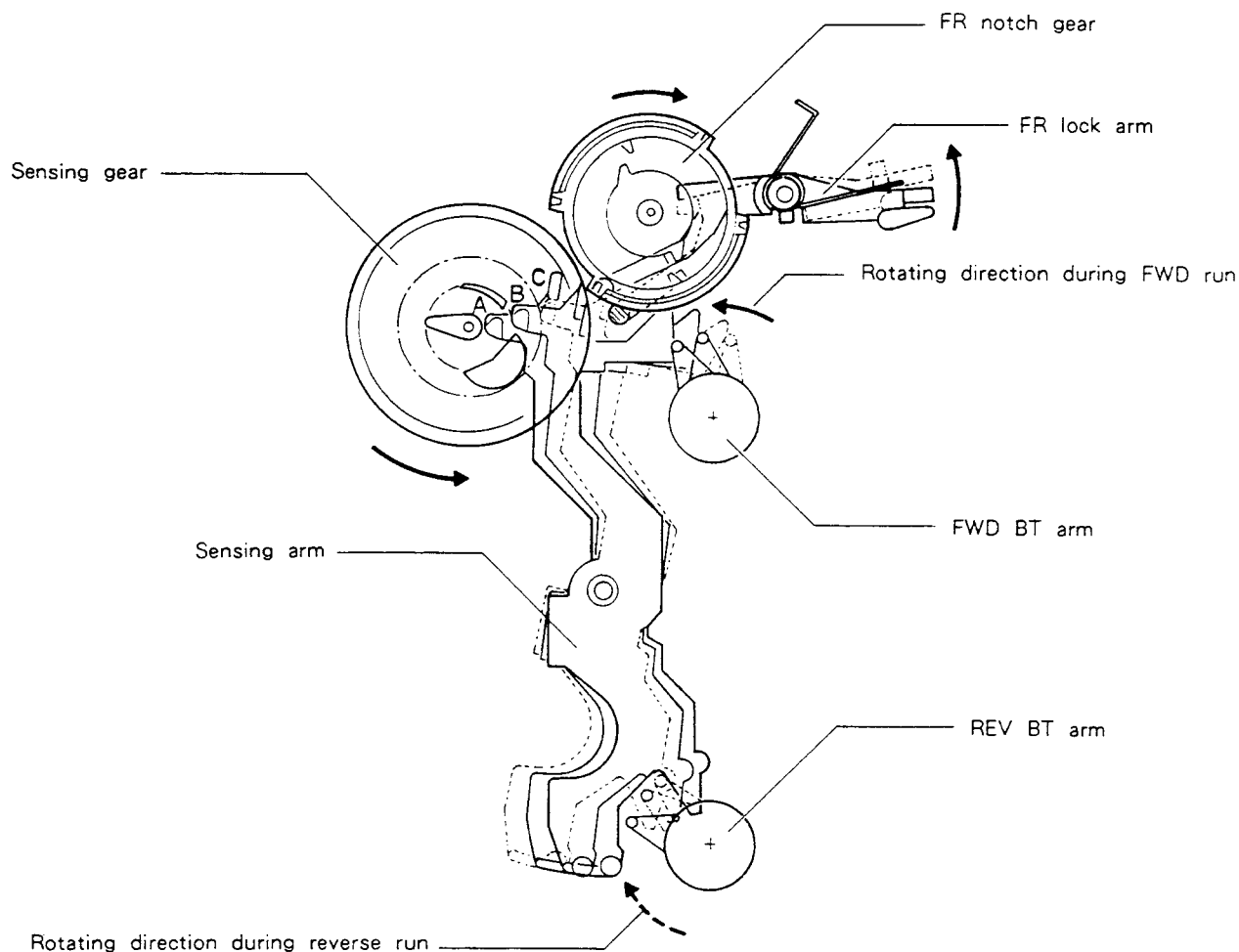


Fig. 17

1. During tape run: The sensing arm keeps oscillation between A and B under a force of the FWD BT arm (or REV BT arm).
2. At end of tape: The force of the BT arm is lost. The sensing arm stops at Position B, then pushed out to Position C by a crescent cam of the sensing gear.
3. Change of run direction: The FR lock arm turns counter-clockwise along with movement of the sensing arm. The FR notch gear is unlocked and begins to turn.

● ATSC Opeeration

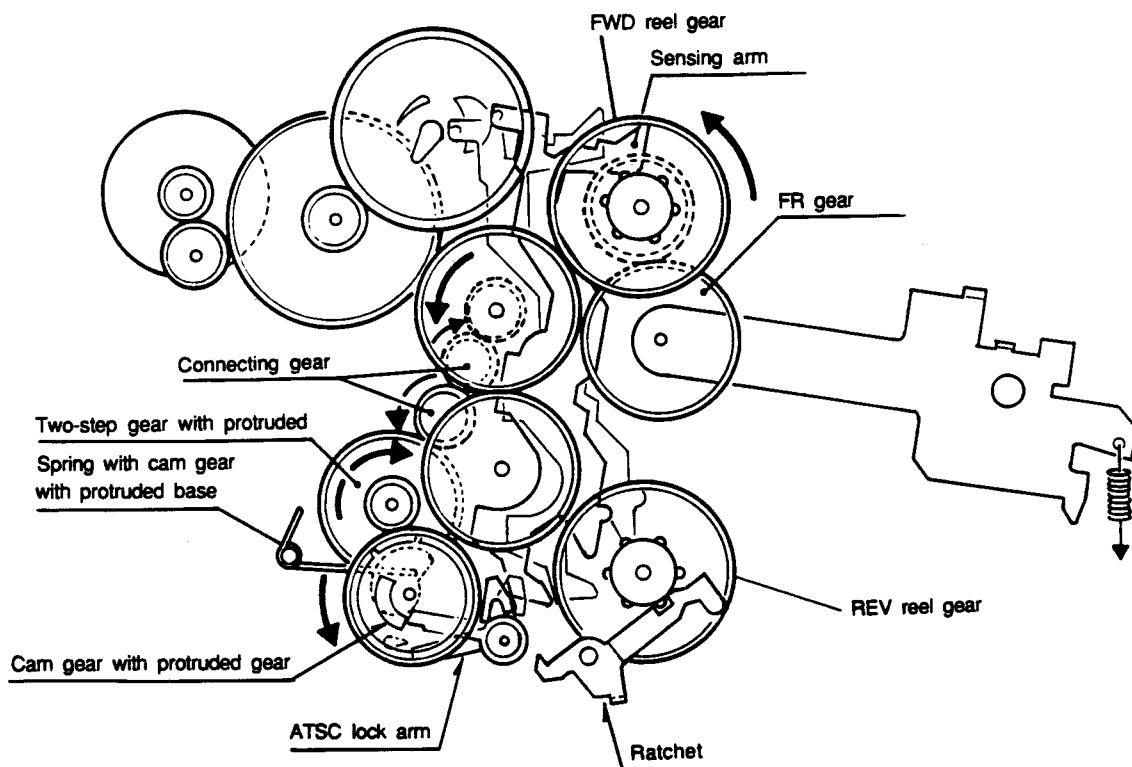
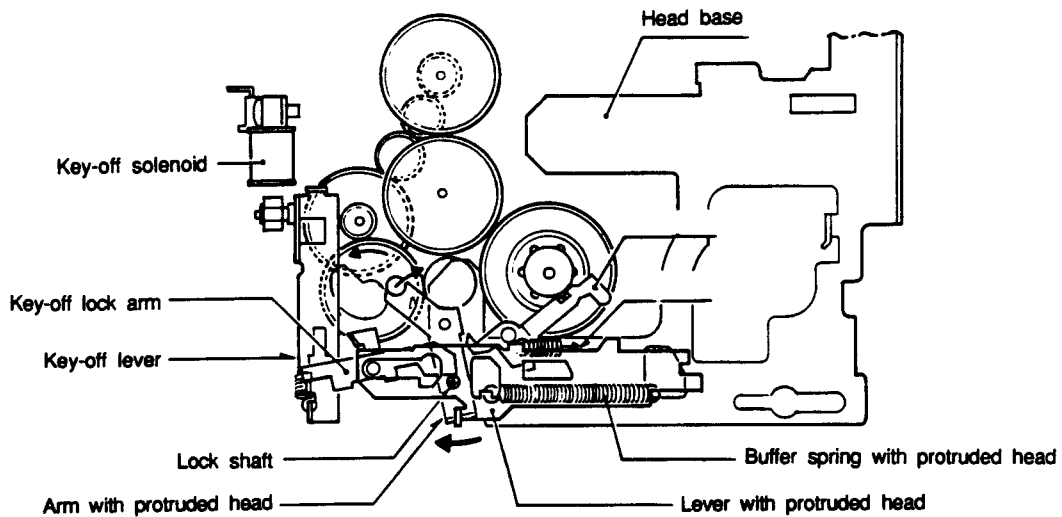


Fig. 18

1. At the position for releasing the head table, the FR gear is meshed with the FWD reel gear. Because the ratchet in the REV reel gear stops rotating, the tape must be wound up until no slack exist.
2. Because the rotation stops when no slack exists in the tape, sensing is performed. The sensing arm presses the ATSC lock arm, and the lock of the cam gear with protruded head gets out of position. Then, the cam gear is made to rotate.

# ● Key-off Operation

## Release Condition



## Play Condition

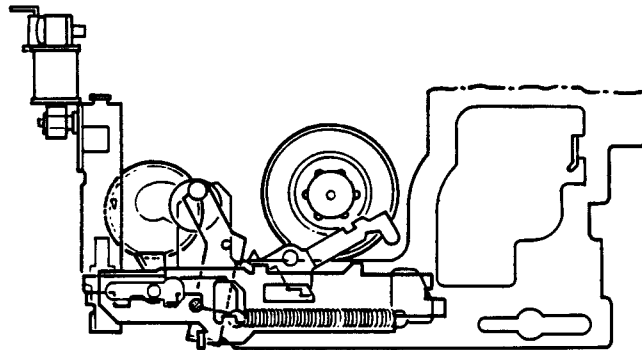


Fig. 19

1. Thrusting head: The arm with protruded head is rotated by the rotation of the cam gear with protruded head, and the lever with protruded head is pushed out. Because the lever with the protruded head and head base are connected by the buffer spring with protruded head, the head base moves forward.

### 2. Lock for head base:

When the lever with protruded head moves forward, the lock shaft caulked by the lever with protruded head shifts. Thus, the key-off lock arm can rotate, and the key-off lever reaches the key-off solenoid

by force of a spring, and becomes attached. (Although escape power works on the key-off lock arm by force of the head return spring, the solenoid maintains it.)

### 3. Key-off:

The key-off lock arm is rotated by the power of the head return spring when the key-off solenoid is switched off, and the lever with protruded head and head base move back together.



## ● EJECT Operation

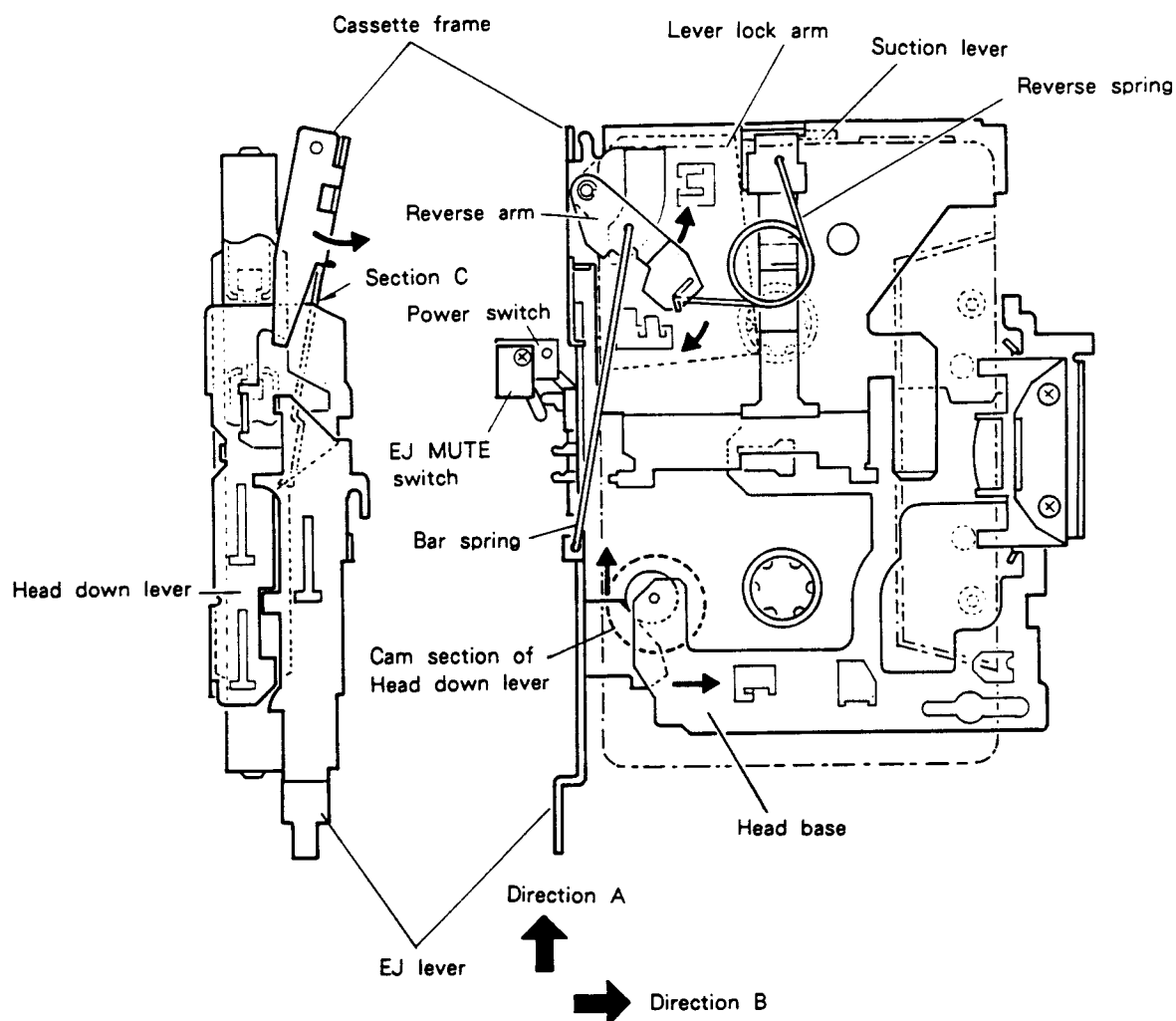


Fig. 20

1. Push the EJ lever in Direction A by hand (EJ MUTE SW ON) At the same time, the head down lever slides in Direction A.
2. The cam section of the head down lever returns the head base in Direction B (head base down operation).
3. Section C of the cassette frame is pushed up by the stroke of the head down lever (push-up operation).
4. The reverse arm is driven in a direction of arrow mark via bar spring by the EJ lever stroke.
5. The reverse spring passes through the reverse position to eject the cassette tape (eject operation).
6. With the EJ lever over-stroking, the lever lock arm can be rotated and locks the head down lever.
7. When released, the EJ lever returns and is stopped by the head down lever.